

A Cure for the Nation's Water Pollution Problem:

Section 303(d) of the Clean Water Act

By

John Foster McCune

B.A. May 1984, Wake Forest University

J.D. May 1987, Wake Forest University

A thesis submitted to
the faculty of

The National Law Center
of the George Washington University

in partial satisfaction of the requirements
for the degree of Master of Laws

August 31, 1998

Thesis directed by

Laurent R. Hourclé
Associate Professor of Environmental Law

Table of Contents

I. Introduction	1
II. CWA Overview	4
A. Objectives and Mechanisms for Achieving Them	4
B. Discharge Permit Programs	6
C. Effluent Limitations in Discharge Permits	11
III. Water Quality-Based Strategy of CWA Section 303	13
A. Water Quality Standards	13
B. Water Quality-Limited Waters and TMDLs	16
IV. Developing and Implementing TMDLs under CWA Section 303(d)	21
A. Definitions	21
B. Developing TMDLs	23
C. Implementing TMDLs	25
V. Federal and State Compliance with CWA Section 303(d)	27
A. The 1970s: Little Action to Implement Section 303(d)	27
B. The 1980s: Forced Compliance with Section 303(d)	29
C. The 1990s: More Litigation and More Action	31
D. Reasons for Delay and Inaction	36
VI. The Impact of TMDLs on NPDES Permit Holders	40
A. Permit Holders and Waters Subject to TMDLs	40
B. Imposing TMDLs on Permit Holders	43
C. Current and Future Trends	44
1. Litigation	44
2. EPA Policy and Guidance	45
3. TMDL FACA Committee Recommendations	49
VII. The Impact of TMDLs on Nonpoint Sources	55
A. Nonpoint Source Pollution	55
B. Nonpoint Source Pollution Problem	58
C. Regulation of Nonpoint Sources under CWA Sections 208 and 319	61
D. Regulation of Nonpoint Sources under CWA Section 303(d)	67
E. Current and Future Trends	71
1. Litigation	71
2. EPA Policy and Guidance	72
3. TMDL FACA Committee Recommendations	79

VIII. The Impact of TMDLs on Federal Facilities	87
A. Waiver of Sovereign Immunity	87
B. Impact on Federal Facilities with NPDES Permits	88
C. Impact on Federal Facilities with Polluted Runoff Problems	90
IX. Conclusion	97
Appendix A: Water Quality-Based Approach to Water Pollution Control	A-1
Figure A-1. Water Quality-Based Approach to Pollution Control	A-3
Figure A-2. General Elements of the Water Quality-Based Approach to Water Pollution Control	A-4
Appendix B: Total Maximum Daily Loads (TMDLs) Development Process	B-1
Figure B-1. Development of Total Maximum Daily Loads (TMDLs) for Targeted Water Bodies	B-1
Figure B-2. Total Maximum Daily Load (TMDL) Development and Approval Procedure	B-2
Appendix C: Major Federal NPDES Permit Holders	C-1

I. Introduction^a

Our Nation's waters -- our most precious natural resource -- are rapidly being transformed into a vast, rancid sewer. Scarcely an uncontaminated body of water, mostly untreated, pours into our waterways from farms, factories, and cities. And despite Administration claims of progress, the situation is getting worse. Present Government programs are hopelessly inadequate.¹

The preceding comments describe the state of our nation's waters and water pollution control efforts in the early 1970s.² Representatives Rangel and Abzug made the comments in support of congressional efforts to amend existing water pollution legislation.³ Those efforts spanned a period of more

^a The author appreciates the support two Environmental Protection Agency employees provided him during preparation of this paper. Amy B. Sosin, Environmental Scientist/TMDL Team Leader in the Office of Water, provided important background information on the section 303(d) program. Kelly Conrad, Environmental Engineer in the Office of Enforcement and Compliance Assurance, provided statistics, explanations, and leads that enabled the author to prepare a more useful paper. Kelly proved to be more responsive and helpful than any other government employee, official, or office the author dealt with while preparing this paper.

¹ H.R. REP. No. 92-911, at 393 (1972), *reprinted in* 1 U.S. SENATE COMM. ON PUBLIC WORKS, 93d Cong., 2d Sess., A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, at 862 (1973) [hereinafter A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972] (comments of Hon. Charles B. Rangel, Democrat-N.Y., and Hon. Bella S. Abzug, Democrat-N.Y., in support of H.R. 11896, the House version of the Federal Water Pollution Control Act Amendments of 1972, Pub. L. 92-500, 86 Stat. 816 (1972)).

² When addressing the Senate regarding consideration of the conference report on S. 2770, the Senate version of the Federal Water Pollution Control Act Amendments of 1972, Senator Muskie said: "Our planet is beset with a cancer which threatens our very existence and which will not respond to the kind of treatment that has been prescribed in the past. The cancer of water pollution was engendered by our abuse of our lakes, streams, rivers, and oceans; it has thrived on our half-hearted attempts to control it; and like any other disease, it can kill us." 118 CONG. REC. S16,869 (daily ed. Oct. 4, 1972), *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 161 (statement of Sen. Edmund S. Muskie, Democrat-Me.). Senator Muskie went on to say that the cancer of water pollution has been ignored for a long time and that the legislation under consideration must provide "the means, properly administered, to eliminate this cancer." *Id.* at 162.

³ H.R. Report 92-911, at 393-419, *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 862-88. Federal water pollution control efforts date back to the Rivers and Harbors Appropriations Act of 1899, 30 Stat. 1151. However, the legislation from which the 1972 amendments take their name, the Federal Water Pollution Control Act, was enacted in 1948. Act of June 30, 1948, ch. 758, 62 Stat. 1155. For a discussion of the history of federal efforts to control water pollution, see Russell V. Randle & Suzanne

than two years and included hearings, meetings, and negotiations in both houses of Congress.⁴ They also included bargaining among Senate and House conference committee members.⁵ In the end, and over President Nixon's veto, Congress enacted extensive changes to the Federal Water Pollution Control Act (FWPCA).⁶

The changes to the FWPCA included the imposition of nationwide technology-based effluent limitations on certain discharges of pollutants.⁷ The amendments charged the Environmental Protection Agency (EPA) with setting those effluent limitations and administering them through a permit

R. Schaeffer, *Water Pollution*, in ENVIRONMENTAL LAW HANDBOOK 147, 147-51 (Timothy A. Vanderver, Jr. ed.-in-chief, 1994); John P.C. Fogarty, *A Short History of Federal Water Pollution Control Law*, in CLEAN WATER DESKBOOK at 5 (Envtl. L. Inst., 1988); 2 WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW: AIR & WATER § 4.1 (1986).

⁴ Oliver A. Houck, *TMDLs: The Resurrection of Water Quality Standards-Based Regulation Under the Clean Water Act*, 27 ENVTL. L. REP. (Envtl. L. Inst.) 10,329, 10,332 (July 1997) (citing HARVEY LEIBER, *FEDERALISM & CLEAN WATERS* 13, at 31-75 (1975)).

⁵ *Id.*

⁶ See Fogarty, *supra* note 3, at 5 (called the changes comprehensive and said they completely overhauled the existing system); RODGERS, *supra* note 3, at § 4.1 (described the revisions as being major). President Nixon was committed to environmental protection but opposed legislative efforts to improve water quality through "extreme and needless overspending." 118 CONG. REC. S18,534 (daily ed. Oct. 17, 1972); 118 CONG. REC. H10,266 (daily ed. Oct. 18, 1972); 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 137 (veto message on S.2770, the Federal Water Pollution Control Act Amendments of 1972, Pub. L. 92-500, 86 Stat. 816 (1972)). The President described the legislation as "a bill whose laudable intent is outweighed by its unconscionable \$24 billion price tag." *Id.* He said his proposed legislation, as reflected in his budget, "provided sufficient funds to fulfill that same intent in a fiscally responsible manner." *Id.* The Senate passed the amendments over the President's veto by a vote of 52 to 12. 118 CONG. REC. S18,554 (daily ed. Oct. 17, 1972); 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 135-136. The House voted to overrule the President's veto by a vote of 247 to 23, with an additional 1 representative answering "Present" and 160 representatives not voting. 118 CONG. REC. H 10,272-273 (daily ed. Oct. 18, 1972); 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 109-13.

⁷ Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, § 2, 86 Stat. 844, 846, 856, 888 (codified as amended at 33 U.S.C. §§ 1311, 1312, 1317, 1362 (1994)). See Randle & Schaeffer, *supra* note 3, at 148-49; *Natural Resources Defense Council v. EPA*, 915 F.2d 1314, 1316-17 (9th Cir. 1990).

system.⁸ In the event technology-based limitations failed to make affected waters clean enough, the amendments provided for development of water quality standards-based limitations.⁹ Since prior efforts to control water pollution focused on regulatory efforts to achieve “water quality standards,” the overall effect of the amendments was to “shift the focus of water pollution laws away from the enforcement of water quality standards and toward the enforcement of technological standards.”¹⁰ However, Congress recognized that enforcement of technological standards might not be enough to achieve established water quality standards and retained a water quality-based strategy for upgrading waters that remained polluted after the application of technology standards.¹¹

This paper addresses the water quality-based strategy retained by the FWPCA Amendments of 1972.¹² That strategy is contained in section 303 of

⁸ Pub. L. No. 92-500, § 2, 86 Stat. 844, 846, 856, 880, 886 (codified as amended at 33 U.S.C. §§ 1311, 1312, 1317, 1342, 1362 (1994)). Permits for the discharge of dredged or fill material are administered by the Secretary of the Army, acting through the Chief of the Army Corps of Engineers, but not without some EPA involvement. Pub. L. No. 92-500, § 2, 86 Stat. 884 (codified as amended at 33 U.S.C. 1344 (1994)). See Randle & Schaeffer, *supra* note 3, at 148-49; Natural Resources Defense Council v. EPA, 915 F.2d at 1316.

⁹ Pub. L. 92-500, § 86 Stat. 846 (codified as amended at 33 U.S.C. 1313(d) (1994)). See Natural Resources Defense Council v. EPA, 915 F.2d at 1316-17.

¹⁰ Natural Resources Defense Council v. EPA, 915 F.2d at 1316-17.

¹¹ Pub. L. 92-500, § 2, 86 Stat. 846 (codified as amended at 33 U.S.C. 1313(d) (1994)). See Oliver A. Houck, *TMDLs, Are We There Yet? The Long Road Toward Water Quality-Based Regulation Under the Clean Water Act*, ENVTL. L. REP. (Envtl. L. Inst.) 10,391, (Aug. 1997) [hereinafter Houck, *TMDLs, Are We There Yet?*]; National Resources Defense Council v. EPA, 915 F.2d at 1317.

¹² Water quality standards first appeared in section 5 of the Water Quality Act of 1965 as the primary method of water pollution control. Environmental Defense Fund, Inc. v. Costle, 657 F.2d 275, 279 (D.C. Cir. 1981) (citing Water Quality Act of 1965, Pub. L. 89-234, 79 Stat. 903, amended, 84 Stat. 91 (1965)). The amendments of 1977 were so comprehensive that the post-1972 FWPCA became known as the “Clean Water Act.” Fogarty, *supra* note 3, at 5 n.1. In 1977 Congress authorized the statute to be referred to as the Clean Water Act. Pub. L. 95-217, § 2, 91 Stat. 1566 (1977) (“This Act may be cited as the ‘Federal Water Pollution Control Act’ (commonly referred to as the Clean Water Act).”). As used in this paper, “Clean Water Act” refers to the post-1972 and current versions of the FWPCA.

the Clean Water Act.¹³ This paper discusses federal and state implementation of the water quality-based strategy. It focuses on the development and implementation of water quality standards-based limitations (namely, total maximum daily loads or "TMDLs") under section 303(d). It addresses the impact of such limitations on entities and activities that generate water pollution. In addition, this paper considers how section 303(d)'s requirements affect federal facilities (both as producers of water pollution and managers of public land from which contaminants to polluted waters originate). The paper's goal is to educate its readers about total maximum daily loads (TMDLs) under section 303(d), discuss what TMDLs mean to the different sources of water pollution, and assess how the section 303(d) program affects federal facilities that generate water pollution and/or manage public lands that are part of a water pollution problem.¹⁴

II. CWA Overview

A. Objectives and Mechanisms for Achieving Them

¹³ CWA § 303, 33 U.S.C. § 1313 (1994). See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,391 n.2 ("Section 303 of the Federal Water Pollution Control Act Amendments of 1972 retained the water quality standards-based regulatory approach of earlier federal legislation, with significant strengthening provisions, chief among which was § 303(d).").

¹⁴ TMDLs are the heart of the water quality-based strategy contained in section 303 of the Clean Water Act. As discussed later in the paper, section 303(d) requires states to: 1) identify waters that will not comply with water quality standards after the imposition of technology-based effluent limitations; 2) prioritize those waters for additional cleanup measures; 3) identify pollutant loading allocations into those waters that will reduce discharges to meet applicable water quality standards (e.g., TMDLs); and 4) incorporate the load allocations into discharge permits and state water quality management plans. CWA § 303(d), 33 U.S.C. § 1313(d); Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,391 n.2. At this point in the paper, a TMDL may be defined as the total loading of specific pollutant(s) authorized for a particular segment of water that will not achieve the applicable water quality standards based solely on technology-based effluent limitations. See 40 C.F.R. § 130.2 (1997).

The FWPCA Amendments of 1972 established an objective of restoring and maintaining the chemical, physical, and biological integrity of United States waters.¹⁵ To achieve that objective, Congress created two national goals: the primary goal of eliminating the discharge of pollutants into navigable waters by 1985; and an interim goal of having water quality which “provides for the protection and propagation of fish, shellfish, and wildlife, and provides for recreation in and on the water” by July 1, 1983.¹⁶ In addition, Congress announced several national policies, including a prohibition against the discharge of “toxic pollutants in toxic amounts.”¹⁷

¹⁵ CWA § 101(a), 33 U.S.C. § 1351(a); S. CONF. REP. No. 92-1236, at 99-100 (1972), *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 282-83.

¹⁶ CWA §§ 101(a)(1)-(2), 33 U.S.C. §§ 1351(a)(1)-(2); S. Conf. Rep. No. 92-1236, at 100, *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 283. The Senate bill proposed reaching an interim goal of water quality for swimming and fish propagation by 1981. *Id.* at 99, *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 282. The House amendment to the Senate bill called for attaining “fishable/swimmable” water quality by 1981. *Id.* at 100, *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 283. Interestingly, the conference committee merged the House amendment with the Senate bill and came up with a projected attainment date of July 1, 1983. *Id.* The conference report offers no explanation for the 1983 compliance date. *Id.*

¹⁷ CWA §§ 101(a)(3)-(7), 33 U.S.C. § 101(a)(3)-(7). Some of the other policies are providing federal financial assistance for construction of publicly owned waste treatment works, creating area-wide waste treatment management planning processes in each state, and making major research and demonstration efforts to develop the technology needed to eliminate the discharge of pollutants into navigable waters. *Id.*; S. CONF. REP. No. 92-1236, at 99-100 (1972), *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 283. The definition of “toxic pollutant” appears at CWA section 502(13), 33 U.S.C. § 1362(13). Essentially, a “toxic” pollutant is a pollutant or combination of pollutants which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism will cause death, disease, behavioral abnormalities, or physical deformations in the organism or its offspring. CWA § 502(13), 33 U.S.C. § 1362(13). Section 307(a) of the CWA, 33 U.S.C. § 1317(a), specifies EPA’s responsibilities for regulating the discharge of toxic pollutants into United States waters. For purposes of this paper, it is helpful to know that toxic pollutants identified by EPA in accordance with section 307(a) are subject to effluent limitations resulting from the application of the best available technology economically achievable for the class of point sources established in accordance with 33 U.S.C. §§ 1311(b)(2)(A) and 1314(b)(2). CWA § 307(a)(2), 33 U.S.C. § 1317(a)(2). “Effluent limitations” and “point sources” will be addressed later in this paper.

The CWA contains a variety of regulatory tools and mechanisms designed to attain the statute's objectives and policies.¹⁸ Among these tools are a prohibition on discharges except in accordance with the Act, a permit program to authorize and regulate certain discharges, and a system for setting the limitations to be imposed on regulated discharges.¹⁹ The Act also includes a process for cooperative federal/state implementation of the discharge standards, and strong enforcement measures.²⁰

B. Discharge Permit Programs

Section 301 prohibits the discharge of any pollutant by any person except in compliance with the effluent limitations, permit requirements, and other specified provisions of the CWA.²¹ A "pollutant" includes dredged spoil, solid waste, sewage, garbage, heat, and agricultural waste discharged into water.²² The "discharge of any pollutant" means "any addition of any pollutant to navigable waters from any point source."²³ "Navigable waters"

¹⁸ Lynn M. Gallagher, *Clean Water Act*, in ENVIRONMENTAL LAW HANDBOOK 135, 137 (Thomas F. P. Sullivan, ed., 1995).

¹⁹ CWA §§ 301, 306, 307, 402, 404, 33 U.S.C. §§ 1311, 1316, 1317, 1342, 1344; Gallagher, *Clean Water Act*, *supra* note 18, at 137.

²⁰ CWA §§ 309, 401, 402, 404, 505, 33 U.S.C. §§ 1319, 1341, 1342, 1344, 1365; Gallagher, *Clean Water Act*, *supra* note 18, at 137. If approved by EPA, a state or tribal government can operate discharge permitting programs under CWA sections 402 and 404. CWA §§ 402, 404, 33 U.S.C. §§ 1342, 1344. Section 309 authorizes administrative, civil judicial, and criminal enforcement of CWA requirements. CWA § 309, 33 U.S.C. 1319. Section 505 authorizes the use of citizen suits to enforce effluent limitations contained in discharge permits. CWA § 505, 33 U.S.C. § 1365(a). In addition, citizen suits may be brought to force EPA to perform any nondiscretionary act or duty imposed by the CWA. *Id.*

²¹ CWA § 301(a), 33 U.S.C. § 1311(a); Gallagher, *Clean Water Act*, *supra* note 18, at 137. "Person" is defined in CWA section 502 as an individual, corporate entity of some sort, state, municipality, commission, subdivision of a state, or any interstate body. CWA § 502(2), 33 U.S.C. § 1362(2).

²² CWA § 502(6), 33 U.S.C. § 1362(6).

²³ CWA § 502(12)(A), 33 U.S.C. § 1362(12)(A). Any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a floating craft also constitutes a

means the waters of the United States, including the territorial seas.²⁴ A

“point source” is “any discernible, confined and discrete conveyance,” such as a pipe, ditch, tunnel, well, container, or rolling stock, from which pollutants are or may be discharged.²⁵ In summary, section 301 prohibits individuals, organizations, and nonfederal government entities from discharging pollutants into United States waters through point sources except in compliance with the requirements of the CWA.²⁶

“discharge of pollutant.” CWA § 502(12)(B), 33 U.S.C. § 1362(12)(B). This paper does not address discharges into oceans or the contiguous zone.

²⁴ CWA § 502(7), 33 U.S.C. § 1362(7). Territorial seas extend seaward from the coastline for three miles. CWA § 502(8), 33 U.S.C. § 1362(8). This paper does not deal with discharges into the territorial seas. EPA regulations define “waters of the United States” broadly to include: 1) all waters “which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which may be subject to the ebb and flow of the tide;” 2) all interstate waters, including wetlands; 3) “all other waters” (i.e., intrastate lakes, rivers, intermittent streams, wetlands, or natural ponds) “the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce;” 4) tributaries of waters that otherwise meet the definition of waters of the United States under this definition; 6) the territorial sea; and 7) wetlands adjacent to waters otherwise meet the definition of waters of the United States. 40 C.F.R. § 122.2 (1997). “Wetlands” are those areas that are “inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. *Id.* This paper does not specifically address discharges in wetlands.

²⁵ CWA § 502(14), 33 U.S.C. § 1362(14). The definition does not include agricultural stormwater discharges and return flows from irrigated agriculture. *Id.* The CWA does not define “nonpoint source, even though section 319 provides federal technical assistance and funding for state nonpoint source management programs. *See* CWA §§ 319, 502, 33 U.S.C. §§ 1329, 1362. In a 1992 report to Congress on the CWA’s nonpoint source pollution management program, EPA defined “nonpoint source pollution” in these terms: “Nonpoint source pollution generally results from land runoff, precipitation, atmospheric deposition, drainage, or seepage. Although nonpoint sources have been described in a number of ways, they are defined as sources of water pollution that do not meet the legal definition of ‘point source’ in section 502(14) of the Clean Water Act.” EPA, EPA-506/9-90, MANAGING NONPOINT SOURCE POLLUTION 5 (1992). A more helpful definition may be “A diffuse source of water pollution that does not discharge through a pipe [or other point source as defined in section 502(14) of the CWA], such as agricultural or urban runoff, runoff from construction activities, etc.” EPA, EPA 841-R-84-100, REPORT TO CONGRESS: NONPOINT SOURCE POLLUTION IN THE U.S. app. at C-4 (1984). The impact of nonpoint source pollution on state and federal efforts to restore and maintain the quality of our nation’s waters is discussed towards the end of this paper.

²⁶ Although federal agencies and facilities are not included in the section 502(2)’s definition of “person,” they are subject to most federal, state, and local water pollution control requirements to the same extent as any “person” under section 502(2). CWA § 313, 33 U.S.C. § 1323. CWA section 313 contains a waiver of sovereign immunity that makes the CWA effluent limitations and permit

Section 402 establishes the national pollution discharge elimination system (NPDES), which is the primary means for imposing and enforcing limitations on the discharge of pollutants under the CWA.²⁷ Section 402(a) authorizes the Administrator of EPA to issue permits for the discharge of pollutants to individual point sources as long as the authorized discharge will meet applicable effluent limitations, standards of performance, pretreatment standards, reporting and inspection requirements, and ocean discharge criteria.²⁸ Alternatively, the Administrator may issue permits if, prior to taking necessary implementing actions related to applicable effluent limitations, standards of performance, pretreatment requirements, and other

requirements applicable to federal facilities. *See id.* Application of the CWA to federal facilities will be discussed later in this paper.

²⁷ CWA § 402, 33 U.S.C. § 1342. *See Randle & Schaeffer, supra* note 3, at 171. John Fogarty, an attorney at EPA and former editor of the *Environmental Law Reporter*, called NPDES the “centerpiece of the [CWA’s] regulatory program.” Fogarty, *supra* note 3, at 10. While section 402 may be the primary mechanism for controlling pollutant discharges, the CWA contains other provisions regarding permits. Section 403 contains provisions for ocean discharges, section 404 addresses discharge of dredged and fill material, and section 405 deals with the disposal of sewage sludge. CWA §§ 403-405, 33 U.S.C. §§ 1343-45. *See Randle & Schaeffer, supra* note 3, at 171. These provisions are less central to the CWA’s system of controlling water pollution but are “important for controlling specific types of discharges that are not easily addressed by generally applicable permit provisions and effluent limitations.” Randle & Schaeffer, *supra* note 3, at 171-72. This paper primarily focuses on NPDES permits under section 402 but mentions, where appropriate, permits and permit conditions under other sections of the CWA.

²⁸ CWA § 402(a)(1)(A), 33 U.S.C. § 1342(a)(1)(A); *E.I. Du Pont De Nemours & Co. v. Train*, 430 U.S. 112, 119 (1977). Section 402(a)(1) provides: “Except as provided in [sections 318 and 404 of this Act], the Administrator may, after opportunity for public hearing, issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding [section 301(a)], upon condition that such discharge will meet either (A) all applicable requirements under [sections 301, 302, 306, 307, 308, and 403 of this Act], or (B) prior to the taking of necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this [Act].” CWA § 402(a)(1), 33 U.S.C. § 1342(a)(1). Section 318 deals with nonpoint source pollution management and section 403 deals with ocean discharges. CWA §§ 318, 403, 33 U.S.C. §§ 1328, 1343. Section 402’s permit requirement does not apply to discharges from nonpoint sources, including agricultural return flow and stormwater runoff from oil, gas, and mining operations. *See* CWA §§ 402(a)(1), (l), 33 U.S.C. §§ 1342(a)(1), (l). *See also* Natural Resources Defense Council v. EPA, 915 F.2d at 1316 (speculating that the CWA banned only discharges from point sources because they could be “identified and regulated more easily than nonpoint source polluters”). 40

limitations described in section 402(a)(1), the discharge will meet whatever conditions the Administrator determines are necessary to carry out the provisions of the CWA.²⁹ The Administrator is also required to prescribe conditions for permits that assure compliance with the requirements of section 402(a)(1) (e.g., water quality effluent limitations).³⁰ NPDES permits are effective for a fixed term not to exceed five years and may be renewed.³¹ Under section 402(k), the permit shield, compliance with a permit issued pursuant to section 402(a) "shields" the discharger from most government and citizen suit enforcement actions under CWA sections 309 and 505.³²

Any state desiring to administer its own permit program for discharges into navigable waters within its jurisdiction may submit a plan for its program

C.F.R. § 122.3 specifies the statutory and regulatory exclusions from the NPDES permit requirement. See 40 C.F.R. § 122.3 (1997).

²⁹ CWA § 402(a)(1)(B), 33 U.S.C. § 1342(a)(1)(B). The permit requirement only applies to point sources that discharge directly into waters of the United States. See CWA § 402(a)(1), 33 U.S.C. § 1342(a)(1); EPA, EPA 800-R-96-001, DRAFT FRAMEWORK FOR WATERSHED-BASED TRADING 2-2, 2-3 (1996) [hereinafter DRAFT FRAMEWORK FOR WATERSHED-BASED TRADING]. A point source that discharges to a wastewater treatment facility is an indirect discharger and does not need a NPDES permit. DRAFT FRAMEWORK FOR WATERSHED-BASED TRADING, *supra* note 29, at 2-2, 2-3. Although not subject to the permit requirement, an indirect discharger must meet technology-based effluent standards EPA sets independent of receiving water quality. *Id.* In addition to meeting EPA-set pretreatment standards, an indirect discharger must meet any local limits established by the wastewater treatment facility to ensure that the treatment facility (which is a direct discharger and subject to the permit requirement) remains in compliance with its NPDES permit. *Id.* at 2-3. Local limits also help prevent an indirect discharger's wastestream from interfering with treatment plant operations or passing through the plant untreated. *Id.*

³⁰ *Id.* The requirements of section 402(a)(1) include water quality related effluent limitations, which will be discussed later in this paper. CWA §§ 302, 402(a)(1), 33 U.S.C. §§ 1312, 1342(a)(1).

³¹ 40 C.F.R. §§ 122.41(b) (duty to reapply to continue permit after expiration date), 122.46(a) (duration of permit) (1997). EPA's regulations regarding the NPDES permit program are found at 40 C.F.R. part 122 (1997).

³² CWA § 402(k), 33 U.S.C. § 1342(k); Gallagher, *Clean Water Act*, *supra* note 18, at 137. Section 402(k) says: "Compliance with a permit issued pursuant to this section shall be deemed compliance, for purposes of [sections 309 and 505], with [sections 301, 302, 306, 307, and 403 of the CWA], except any standard imposed under [section 307] for a toxic pollutant injurious to human health." CWA § 402(k), 33 U.S.C. § 1342(k).

to the EPA Administrator for review and approval.³³ Section 402(b) specifies the requirements state programs must meet to receive the Administrator's approval.³⁴ Once approved, a state program replaces the federal program for those discharges regulated by the state program.³⁵ Section 402(c) authorizes the Administrator to withdraw approval of a state program if the state fails to administer its program in accordance with section 402 and the guidelines EPA promulgates regarding monitoring, reporting, enforcement, personnel qualifications, and manpower.³⁶ If the Administrator withdraws approval of a state program, the EPA becomes responsible for administering a federal discharge permit program in the state.³⁷ Similarly, section 402(c) authorizes states to return administration of permit programs to the Administrator.³⁸ Under section 402(d), EPA is entitled to review, comment on, and veto each permit application a state with an approved permit program receives.³⁹ In addition, EPA can bring an administrative or civil judicial action against any person who violates an approved state permit program.⁴⁰ EPA can also initiate criminal enforcement action for violation of an approved state permit

³³ CWA § 402(b), 33 U.S.C. § 1342(b).

³⁴ *Id.* State programs must be consistent with guidelines EPA issues regarding monitoring, reporting, enforcement, funding, personnel qualifications, and manpower requirements. CWA §§ 304(i), 402(b), 33 U.S.C. §§ 1314(i), 1342(b). EPA's regulations that specify state program requirements are found at 40 C.F.R. part 123 (1997).

³⁵ CWA § 402(c)(1), 33 U.S.C. § 1342(c)(1).

³⁶ CWA § 402(c)(2)-(4), 33 U.S.C. § 1342(c)(2)-(4).

³⁷ *See* CWA § 402(c), 33 U.S.C. § 1342(c).

³⁸ *See* CWA § 402(c)(4), 33 U.S.C. § 1342(c)(4).

³⁹ CWA § 402(d), 33 U.S.C. § 1342(d).

⁴⁰ CWA §§ 309(a)-(b), 33 U.S.C. §§ 1319(a)-(b).

program.⁴¹ As of December 10, 1996, 41 states and 1 territory were administering approved NPDES permits in their jurisdictions.⁴²

C. Effluent Limitations in Discharge Permits

Effluent limitations contained in a NPDES permit specify the amount and character of the wastewater a facility is authorized to discharge.⁴³ These restrictions come in two forms: technology-based limitations; and limitations designed to meet water quality standards.⁴⁴ The technology-based limitations focus on the capacity to control pollutants prior to discharge and are developed by reference to available pollution control technologies.⁴⁵ Water quality-related effluent limitations focus on the effects of discharges and are developed to achieve applicable water quality standards.⁴⁶ Unlike technology-

⁴¹ See CWA § 309(c), 33 U.S.C. § 1319(c).

⁴² 61 Fed. Reg. 65,047, 65,051 (1996). These states with EPA-approved permit programs are Alabama, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, Virgin Islands, Virginia, Washington, West Virginia, Wisconsin, and Wyoming. *Id.* The territory with an approved permit program is the Virgin Islands. *Id.*

⁴³ LYNN M. GALLAGHER & LEONARD A. MILLER, CLEAN WATER HANDBOOK 43 (2d ed. 1996).

⁴⁴ CWA §§ 301(b), 302, 33 U.S.C. §§ 1311(b), 1312; 40 C.F.R. §§ 122.44, 123.25 (1997).

⁴⁵ Fogarty, *supra* note 3, at 12, 15. Pursuant to CWA sections 301(b) and 304(b), EPA establishes national "effluent guidelines" for industrial categories. CWA §§ 301(b), 304(b), 33 U.S.C. §§ 1311(b), 1314(b). These guidelines set limits for all dischargers within an industrial category and for specific types of discharges (e.g., cooling water, process water, sanitary wastewater). Gallagher, *Clean Water Act*, *supra* note 18, at 147. Permit writers for discharges in industrial categories for which EPA has not yet issued effluent guidelines, and for types of discharges not covered by effluent guidelines, must apply "best professional judgment" in establishing effluent limitations. *Id.* Sections 301(b) and 304(b) require establishment of technology-based limitations in two stages. CWA §§ 301(b), 304(b), 33 U.S.C. §§ 1311(b), 1314(b). The standards and timetable for meeting each stage are beyond the scope of this paper. In *E.I. Du Pont De Nemours & Co. v. Train*, 430 U.S. 112 (1977), the Supreme Court upheld an early attempt by EPA to promulgate regulations that establish technology-based effluent limitations. See Gallagher, *Clean Water Act*, *supra* note 18, at 147-50, for a discussion of technology-based limitations. EPA's regulations that require permit conditions to include applicable effluent limitations and water quality standards are found at 40 C.F.R. §§ 122.44, 123.25 (1997).

⁴⁶ 40 C.F.R. §§ 122.44(d)(1), 123.25 (1997); Fogarty, *supra* note 3, at 15.

based restrictions, water quality effluent limitations have not been routinely included in discharge permits.⁴⁷ They are imposed to supplement technology-based restrictions when more stringent limitations are needed to protect the quality of the receiving water (water body or water body segment).⁴⁸ Section 302 authorizes federal permit writers to impose water quality-based effluent limitations for point sources whose discharges, despite application of technology-based effluent restrictions, will interfere with the receiving water's attainment or maintenance of water quality adequate to protect public health, public water supplies, agricultural and industrial uses, fish and wildlife, and recreational activities in and on the water.⁴⁹ States must establish the water

⁴⁷ Fogarty, *supra* note 3, at 15.

⁴⁸ *Id.* The legislative history of FWPCA Amendments of 1972 says section 302 provides authority to "supplement" any effluent limitations set pursuant to section 301(b)(2) which are "inadequate to attain or preserve water quality adequate to protect public water supplies, agricultural, and industrial uses, fish and wildlife, and recreational activities" with more restrictive effluent limitations designed to attain such quality. See H.R. REPORT 92-911, at 104, *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 791; S. Conf. Rep. No. 92-1236, at 121-22, *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 304-0.

⁴⁹ CWA § 302(a), 33 U.S.C. § 1312(a). Discharge limitations established under section 302(a) must "reasonably be expected to contribute" to attainment or maintenance of the drinkable/fishable/swimmable quality the discharges interfere with when only subject to technology-based controls. *Id.* In addition, there must be a reasonable relationship between the economic costs, social costs, and environmental benefits of compliance with any effluent limitation imposed under section 302. See CWA § 302(b), 33 U.S.C. § 1312(b); H.R. REPORT 92-911, at 104, *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 791; S. Conf. Rep. No. 92-1236, at 121-22, *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 304-05; Fogarty, *supra* note 3, at 15. Section 302 authorizes EPA to promulgate water quality-based effluent limitations and requires notice and a public hearing before EPA finalizes a section 302 limitation. CWA §§ 302(a)-(b)(1), 33 U.S.C. §§ 1312(a)-(b)(1); 40 C.F.R. §§ 122.44(d)(vii)(2); Karen M. Warzinski, David B. Sandalow, Sara M. Bugin, Beth S. Ginsberg, & Karen M. McGaffey, *Water Pollution Control Under the National Pollution Discharge Elimination System*, in THE CLEAN WATER ACT HANDBOOK (Parthenia B. Evans, ed. 1994) 8, at 34-35.

quality standards that section 302 effluent limitations are designed to attain and preserve.⁵⁰

III. Water Quality-Based Strategy of CWA Section 303

Section 303 contains the CWA's water quality-based strategy for water pollution control.^{50.1} That strategy includes establishing water quality standards, identifying water quality-limited waters, and developing TMDLs.^{50.2}

A. Water Quality Standards

A water quality standard defines the water quality goals of a water body or water body segment.⁵¹ It defines those goals by designating the use or uses to be made of the water body or water body segment and by setting criteria needed to protect those uses.⁵² States and EPA adopt water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the CWA.⁵³ To "serve the purposes of the CWA," water quality standards should be sufficient to protect and encourage fish, wildlife,

⁵⁰ See CWA § 303, 33 U.S.C. § 1313; 40 C.F.R. part 131 (1997).

^{50.1} CWA § 303, 33 U.S.C. § 1313; See *supra* notes 11-12 and accompanying text.

^{50.2} See CWA § 303, 33 U.S.C. § 1313.

⁵¹ 40 C.F.R. §§ 130.3, 131.2 (1997).

⁵² *Id.* EPA's water quality planning and management regulations define "water quality standards" as "Provisions of State or Federal law which consist of a designated use or uses for the waters of the United States and water quality criteria for such waters based upon such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the [CWA]." 40 C.F.R. §§ 130.2(d), 131.3(i) (1997). Water quality criteria are expressed as constituent concentrations, levels, or narrative statements, that represent a quality of water that supports a particular use. 40 C.F.R. § 131.3(b) (1997). Gallagher and Miller said water quality criteria "quantitatively describe the physical, chemical and biological characteristics of waters necessary to support the designated uses. For example, the standard may state that the level of arsenic in a stream designated for trout propagation may not exceed 0.2 milligrams per liter." GALLAGHER & MILLER, *supra* note 43 at 58.

⁵³ 40 C.F.R. §§ 130.2(d), 131.2 (1997).

and recreation.⁵⁴ In addition, they should be developed with consideration of the use and value of public water supplies, propagation of fish and wildlife, recreation, agriculture, industrial use, navigation, and other purposes.⁵⁵ The standards set water quality goals for specific water bodies and serve as the regulatory basis for establishment of water quality-based treatment controls and strategies beyond the technology-based treatment required by sections 301(b) and 306 (national technology-based control standards).⁵⁶

Section 303(a) of the CWA requires each state to establish water quality standards for all intrastate and interstate water bodies within its borders.⁵⁷ State standards, though, must be consistent with the requirements of the CWA.⁵⁸ Furthermore, states must submit standards they adopt to EPA

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ *Id.* Unless otherwise specified, all "sections" mentioned in this paper are sections of the CWA. So, for example, "sections 301(b) and 306" refer to sections 301(b) and 306 of the CWA, 33 U.S.C. §§ 1311(b) and 1316. For a brief description of the water quality-based approach to water pollution control and its relationship to the water quality standards program under sections 303(a)-(c), *see* EPA, EPA-823-B-94-005a, WATER QUALITY STANDARDS HANDBOOK - SECOND EDITION §§ 7.1-7.8 (1994) [hereinafter WATER QUALITY STANDARDS HANDBOOK - SECOND EDITION]. For a short summary of that description, *see* Appendix A.

⁵⁷ CWA § 303(a), 33 U.S.C. § 1313(a); Fogarty, *supra* note 3, at 15.

⁵⁸ CWA § 303(a), 33 U.S.C. § 1313(a); 40 C.F.R. § 131.4(a) (1997). The "CWA requirements" include EPA's regulations on water quality standards, 40 C.F.R. part 131 (1997). Those regulations say the following elements must be included in each state water quality standard submitted to EPA for review and approval: 1) use designations consistent with CWA sections 101(a)(2) and 303(c)(2); 2) methods used and analyses conducted to support water quality standards revisions; 3) water quality criteria sufficient to protect the designated uses; 4) an antidegradation policy consistent with [40 C.F.R. § 131.12]; 5) certification by the state attorney general or other appropriate legal authority that the water quality standards were duly adopted pursuant to state law; and 6) general information which will aid EPA in deciding the adequacy of the scientific basis of the standards which do not include the uses listed in CWA section 101(a)(2) and information on general policies the state standards which may impact the application and implementation of state standards. 40 C.F.R. § 131.6 (1997). At a minimum, the state's antidegradation policy must be consistent with maintaining and protecting: existing instream water uses and the level of water quality needed to support those uses; and existing water quality where the quality exceeds levels needed to support propagation of fish, wildlife, and recreation, unless the state finds that allowing a lower water quality is necessary to accommodate important economic or social developments in the area local to the water body. 40 C.F.R. § 131.12(a)

for review and approval.⁵⁹ EPA's review ensures, among other things, that the standards comply with CWA requirements and protect the uses the state designated for the water.⁶⁰ If EPA disapproves the standards, EPA must notify the state of changes it must adopt to receive EPA's approval of the standards.⁶¹ Under section 303(b), if the state fails to adopt these changes, or if the state fails to adopt standards for water bodies within the times prescribed by the CWA, EPA must promulgate federal water quality standards.⁶² Section 303(c) requires states and EPA to review established water quality standards at least once every three years to determine if changes are appropriate.⁶³ States must submit revised standards they adopt to EPA for review and approval.⁶⁴ The rules for EPA review, approval/disapproval, and promulgation of revised water quality standards mirror the rules for EPA review, approval/disapproval,

(1997). The regulations' water quality standard requirements are a minimum; the states may develop more stringent water quality standards than required by either the CWA or CWA regulations. CWA § 303(a), 33 U.S.C. § 1313(a); 40 C.F.R. § 131.4(a) (1997). See RODGERS, *supra* note 3, at §§ 4.16-4.19 (1986), for a detailed discussion of water quality standards. See Karen M. Warzinski, David B. Sandalow, Sara M. Bugin, Beth S. Ginsberg, & Karen M. McGaffey, *supra* note 49, at 25-34, for another discussion of water quality standards. For a detailed discussion of the antidegradation component of water quality standards, see WATER QUALITY STANDARDS HANDBOOK - SECOND EDITION, *supra* note 56, at §§ 4.1-4.8.2.

⁵⁹ CWA § 303(a), 33 U.S.C. § 1313(a); 40 C.F.R. §§ 131.4(a), 131.5(a) (1997).

⁶⁰ See CWA § 303(a), 33 U.S.C. § 1313(a); 40 C.F.R. § 131.5(a) (1997). See *supra* note 58 for an explanation of the CWA requirements regarding water quality standards.

⁶¹ CWA § 303(a)(3)(C), 33 U.S.C. § 1313(a)(3)(C).

⁶² CWA §§ 303(a)(3)(C), 303(b), 33 U.S.C. §§ 1313(a)(3)(C), (b); 33 U.S.C. § 1313a; 40 C.F.R. § 131.5(b) (1997). The CWA and CWA implementing regulations specify timetables regarding adopting water quality standards. *Id.* Those schedules are not addressed in this paper because they are not relevant to the paper's treatment of TMDLs.

⁶³ CWA § 303(c), 33 U.S.C. § 1313(c); 40 C.F.R. §§ 131.20, 131.22(c) (1997). Revision reviews must include public hearings. *Id.*

⁶⁴ CWA § 303(c), 33 U.S.C. § 1313(c); 40 C.F.R. § 131.21(a) (1997).

and promulgation of new water quality standards.⁶⁵ The primary means for enforcing water quality standards is the NPDES permit.⁶⁶

B. Water Quality-Limited Waters and TMDLs

Section 303(d) requires each state to identify those waters bodies or segments of water bodies within its boundaries for which technology-based effluent limitations required under section 301 are not stringent enough to implement all water quality standards applicable to such waters.⁶⁷ States must also identify waters for which technology-based controls on thermal discharges will not be sufficient to protect a balanced indigenous population of fish and wildlife.⁶⁸ Each state must take its list of water quality-impaired

⁶⁵ See CWA §§ 303(a), (c), 33 U.S.C. §§ 1313(a), (c); 40 C.F.R. §§ 131.5, 131.21, 131.22 (1997).

⁶⁶ *Arkansas v. Oklahoma*, 503 U.S. 91, 101-02 (1992); *Scott v. City of Hammond*, 741 F.2d 992, 995 (7th Cir. 1984), *cert. denied*, 469 U.S. 1196 (1985). See CWA §§ 301(b)(1)(C), 302(a), 402(a)-(c), 33 U.S.C. § 1311(b)(1)(C), 1312(a), 1342(a)-(c); 40 C.F.R. §§ 122.44(d), 122.25, 130.0(b), 130.3, 130.12, 131.2 (1997).

⁶⁷ See CWA § 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A). Section 303(d)(1)(A) says: "Each State shall identify those waters within its boundaries for which the effluent limitations required by section 1311(b)(1)(A) and section 1322(b)(1)(B) of this title are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters." CWA § 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A). Interestingly, this requirement applies to the technology-based controls established under sections 301(b)(1)(A) and (b) but does not apply to the water quality-based effluent limitations referred to in sections 301(b)(1)(C) and 302. CWA § 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A). That may be because water quality-based discharge limitations under sections 301 and 302 are voluntary controls rather than mandatory controls. See CWA §§ 301(b)(1)(C), 302, 33 U.S.C. §§ 1311(b)(1)(C), 1312. In addition, section 302 only authorizes action by EPA. CWA § 302, 33 U.S.C. § 1312; Karen M. Warzinski, David B. Sandalow, Sara M. Bugin, Beth S. Ginsberg, & Karen M. McGaffey, *supra* note 49, at 34-35. One author says the load allocation authority of section 303(d), which is discussed below, "must be viewed independently of the [EPA] Administrator's power to establish 'water quality related effluent limitations' under Section 302." RODGERS, *supra* note 3, at § 4.18. See RODGERS, *supra* note 3, at § 4.18., for a discussion of section 302 and its relationship to section 303(d).

⁶⁸ CWA § 303(d)(1)(B), 33 U.S.C. § 1313(d)(1)(B). Section 303(d)(1)(B) says: "Each State shall identify those waters or parts thereof within its boundaries for which controls on thermal discharges under section 1311 of this title are not stringent enough to assure protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife." CWA § 303(d)(1)(B), 33 U.S.C. § 1313(d)(1)(B). Unless otherwise specified, as used throughout the remainder of this paper, "waters" means water bodies and/or segments of water bodies (e.g., lakes, streams, rivers, sections of rivers).

waters and, taking into consideration the severity of the pollution and the designated uses for the impaired waters, establish a priority ranking for those water quality-limited waters.⁶⁹ In accordance with its priority ranking, each state must establish the total maximum daily load (TMDL) for the pollutants EPA identifies as suitable for such calculation.⁷⁰ Each load must be set at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety that takes into account any lack of knowledge about the relationship between effluent restrictions and water quality.⁷¹ The TMDL requirement for waters impacted by thermal discharges is somewhat different in that states must estimate total maximum daily thermal loads (TMDTLs) required to assure the protection and propagation of indigenous fish and wildlife (rather than establish TMDLs that ensure the attainment of applicable water quality standards).⁷² In addition, estimates for

⁶⁹ CWA § 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A). The requirement to prioritize water quality-limited waters is not included in section 303(d)(1)(B), which addresses waters impacted by thermal discharges. CWA § 303(d)(1)(B), 33 U.S.C. § 1313(d)(1)(B). However, EPA's TMDL regulations include prioritizing such waters. 40 C.F.R. § 130.7(b)(4) (1997).

⁷⁰ CWA § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C). Section 303(d)(1)(C) states: "Each State shall establish for the waters identified in paragraph (1)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section 1314(a)(2) of this title as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality." CWA § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C). Section 304(a)(2)(D), 33 U.S.C. § 1314(a)(2)(D), requires EPA to identify and publish information on pollutants that are "suitable for maximum daily load measurement correlated with the achievement of water quality objectives."

⁷¹ CWA § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C). A summary of the TMDL development process is contained in Appendix B, Figure B-1.

⁷² CWA § 303(d)(1)(D), 33 U.S.C. § 1313(d)(1)(D). Section 303(d)(1)(D) provides: "Each State shall estimate for the waters identified in paragraph (1)(B) of this subsection the total maximum daily load required to assure protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife. Such estimates shall take into account the normal water temperatures, flow rates, seasonal variations, existing sources of heat input, and the dissipative capacity of the identified waters

TMDTLs must take into account the normal water temperatures, flow rates, seasonal variations, existing sources of heat input, and the dissipative capacity of the water body or water body segment that is identified as being impaired by thermal discharges.^{72.1} TMDTL estimates must also include a calculation of the maximum heat input that can be made into each thermal discharge-impacted water body or water body segment.^{72.2} Finally, the margin of safety used to develop TMDTLs must take into account any uncertainty about the development of thermal water quality criteria for the protection of fish and wildlife in waters that are identified as being impacted by thermal discharges.^{72.3}

Each state must submit its list of water quality-limited waters and list of established TMDLs to EPA for review and approval.⁷³ States must submit their lists by April 1 of every even numbered year.⁷⁴ EPA must either approve

or parts thereof. Such estimates shall include a calculation of the maximum heat input that can be made into each such part and shall include a margin of safety which takes into account any lack of knowledge concerning the development of thermal water quality criteria for such protection and propagation in the identified waters or parts thereof." CWA § 303(d)(1)(D), 33 U.S.C. § 1313(d)(1)(D).

^{72.1} CWA § 303(d)(1)(D), 33 U.S.C. § 1313(d)(1)(D).

^{72.2} *Id.*

^{72.3} *Id.* The difference between TMDL requirements for waters impaired by heat discharges and those impaired by other pollutants is not important for purposes of this paper.

⁷³ CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2); 40 C.F.R. § 130.7 (1997). The review and approval requirements regarding the identification of water quality-limited waters and establishment of TMDLs resemble the review and approval requirements that apply to the establishment of water quality standards. Compare CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2), and 40 C.F.R. § 130.7 (1997) (water quality-limited waters and TMDLs), with CWA §§ 303(a)-(c), 33 U.S.C. §§ 1313(a)-(c), and 40 C.F.R. § 131.5 (1997) (water quality standards). See *supra* notes 57-66 and accompanying text for a discussion of section 303(a)'s review and approval requirements. See *infra* notes 74-78 and accompanying text for information about section 303(d)'s review and approval requirements.

⁷⁴ 40 C.F.R. § 130.7(d)(1) (1997). Section 303(d)(2) requires submittals "from time to time" which EPA interpreted to mean biennially. See CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2); 40 C.F.R. § 130.7(d)(1) (1997). EPA's TMDL regulations are found at 40 C.F.R. § 130.7. 40 C.F.R. part 130

or disapprove each list within 30 days of its submission.⁷⁵ If EPA approves a state's list of impaired water body segments and list of maximum daily loads, the state must incorporate those lists in its water quality management process.⁷⁶ If EPA disapproves a state's lists, EPA must identify water quality-limited waters and establish corresponding maximum daily loads for the state.⁷⁷ EPA must develop these lists within 30 days after disapproving the state's submissions.⁷⁸

establishes policies and program requirements for water quality planning, management, and implementation of section 303 of the CWA. 40 C.F.R. § 130.0(a) (1997).

⁷⁵ CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2); 40 C.F.R. § 130.7(d)(2) (1997); *Sierra Club v. Browner*, 843 F. Supp. 1304, 1307 (D. Minn. 1993).

⁷⁶ CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2); 40 C.F.R. § 130.7(d)(2) (1997). Section 303(e) requires each state to develop and implement a continuing planning process which, among other things, identifies priority water quality problems and produces water quality management plans. *See* CWA § 303(e), 33 U.S.C. § 1313(e); 40 C.F.R. § 130.0 (1997). A water quality management plan is a state or areawide waste treatment management plan that, among other things, contains the results of the state's analyses and management decisions that are necessary to control specific sources of pollution. *See* 40 C.F.R. §§ 130.0(c), 130.2(k) (1997). It also recommends control measures and designated management agencies to attain the goals established in the state's water quality standards. *See* 40 C.F.R. §§ 130.0 (b)-(c) (1997). TMDLs and water quality management plans are part of what EPA refers to as the CWA's "water quality-based approach to protecting and cleaning up the nation's waters." *See* EPA, EPA 440/4-91-001, GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS 9 (1991). EPA described that approach as emphasizing "the overall quality of water within a water body and provid[ing] a mechanism through which the amount of pollution entering a water body is controlled based on the intrinsic conditions of that body of water and the standards set to protect it." *Id.* EPA said the approach involves five steps: 1) identification of water quality-limited waters; 2) priority ranking and targeting impaired waters for TMDL development; 3) TMDL development; 4) implementation of control actions, including updating the water quality management plan and imposing controls to meet load allocations; and 5) assessment of water quality-based control actions. *Id.* at 9-17. The general elements of the water quality-based approach are summarized in Appendix A, Figure A-2. The approach itself is summarized in Appendix A, Figure A-1.

⁷⁷ CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2); 40 C.F.R. § 130.7(d)(2) (1997).

⁷⁸ *Id.*; *Sierra Club v. Browner*, 843 F. Supp. at 1307. The relatively short amount time given to EPA to review, approve/disapprove, and (if necessary) identify water quality-impaired waters and set maximum daily loads is consistent with CWA's goal of eliminating pollutant discharges into the nation's waters by 1985 and interim goal of attaining fishable/swimmable water quality in those waters by July 1, 1983. *See* CWA §§ 101(a)(1)-(2), 303(d)(2), 33 U.S.C. §§ 1313(d)(2). In criticizing the "extreme slowness" of EPA's proposed schedule for developing TMDLs for Idaho, the United States District Court for the Western District of Washington (Seattle Division) noted that the "role of TMDLs in the CWA strategy for improving water quality confirms that they were to be developed quickly." *Idaho Sportsmen's Coalition v. Browner*, 951 F. Supp. 962, 966-967 (W.D. Wash. 1996). A summary of the TMDL development and approval process is contained in Appendix B, Figure B-2.

For the specific purpose of developing information, each state must identify all waters within its borders which it has not identified as being water quality-limited and estimate for such waters the TMDL with seasonal variations and margins of safety for those pollutants which EPA identifies as suitable for such calculation.⁷⁹ For thermal discharges, the level must be sufficient to assure protection and propagation of a balanced indigenous population of fish and wildlife.⁸⁰ These requirements are optional in that states may identify non-limited waters and set TMDLs for such waters "as resources allow" and need not submit loads set for non-limited waters to EPA for approval.⁸¹ In addition, EPA is not required to act if a state fails to identify non-limited segments and develop TMDLs for those waters.⁸²

Section 303(d) limits the revisions that may be made to effluent restrictions that are set based on a TMDL or other wasteload allocation established under section 303.⁸³ For a water body or water body segment that fails to meet applicable water quality standards, a section 303-based discharge restriction may be revised only if: 1) the cumulative effect of all revised section 303-based discharge restrictions will assure the attainment of applicable water quality standards; or 2) the designated use which is not being

⁷⁹ CWA § 303(d)(3), 33 U.S.C. § 1313(d)(3); 40 C.F.R. § 130.7(e) (1997). Section 303(d)(3) provides: "For the specific purpose of developing information, each State shall identify all waters within its boundaries which it has not identified under paragraph (1)(A) and (1)(B) of this subsection and estimate for such waters the total maximum daily load with seasonal variations and margins of safety, for those pollutants which the Administrator identifies under section 1314(a)(2) of this title as suitable for such calculation and for thermal discharges, at a level that would assure protection and propagation of a balanced indigenous population of fish, shellfish and wildlife." CWA § 303(d)(3), 33 U.S.C. § 1313(d)(3).

⁸⁰ *Id.*

⁸¹ See 40 C.F.R. § 130.7(e) (1997). The TMDL regulations also say establishing TMDLs for quality-limited waters shall be given higher priority than setting loads for non-limited waters. *Id.*

⁸² See CWA § 303(d), 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7 (1997).

attained is removed pursuant to applicable section 303 regulations.⁸⁴ For a water quality-limited segment that meets or exceeds the level of water quality required to either protect the designated uses for the segment or comply with applicable water quality standards, an effluent limitation established under section 303 may be revised only if the revision is subject to and consistent with the antidegradation policy established under section 303.⁸⁵ Section 303(d)'s revision requirements do not apply to waters that are identified as water quality-limited due to thermal discharges.⁸⁶

IV. Developing and Implementing TMDLs Under CWA Section 303(d)

A. Definitions

A TMDL defines the maximum amount of a pollutant which can be discharged (introduced or "loaded") into and assimilated by a water body or water body segment from all sources (point sources, nonpoint sources, and natural background sources) each day without exceeding applicable water

⁸³ CWA § 303(d)(4), 33 U.S.C. § 1313(d)(4).

⁸⁴ CWA § 303(d)(4)(A), 33 U.S.C. § 1313(d)(4)(A).

⁸⁵ CWA § 303(d)(4)(B), 33 U.S.C. § 1313(d)(4)(B). As an example, suppose nine facilities discharge phosphorus-containing wastes into a stream and phosphorus concentrations in that stream just meet applicable standards. Suppose further that two of those facilities stop discharging phosphorus-containing wastes and actual water quality in the stream improves (i.e., the level of phosphorus decreases). Under the section 303(d) revision rules, the seven facilities that continue to discharge phosphorus may be allowed to increase their discharges of phosphorus. Similarly, if ambient phosphorus concentrations decrease due to a change in farming practices near the stream, those seven facilities may be allowed to increase their discharges of phosphorus. See WATER QUALITY STANDARDS HANDBOOK - SECOND EDITION, *supra* note 56, at Exhibit 4-2. See *supra* note 58 for information about the antidegradation policy. For a discussion of the antidegradation policy's role in the development and revision of TMDLs and other allocations established under section 303 (e.g., TMDTLs), see WATER QUALITY STANDARDS HANDBOOK - SECOND EDITION, *supra* note 56, at § 4.8.1.

⁸⁶ See CWA § 303(d)(4), 33 U.S.C. § 1313(d)(4).

quality standards.⁸⁷ In technical terms, a TMDL is the total of all load allocations and wasteload allocations allocated for a particular water body or water body segment.⁸⁸ A “load allocation” is the part of a receiving water’s loading capacity that is attributed to either a current or future nonpoint source of pollution or to natural background sources.⁸⁹ A “wasteload allocation” is the part of a receiving water’s loading capacity that is attributed to an existing or future point source of pollution.⁹⁰ A water body or water body segment’s “loading capacity” is the maximum amount of matter or heat that the receiving water can receive and assimilate without violating applicable water quality

⁸⁷ See *Dioxin/Organochlorine Center v. Clarke*, 57 F.3d 1517, 1520 (9th Cir. 1995); 40 C.F.R. §§ 130.2(e)-(i) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 6; Karen M. Warzinski, David B. Sandalow, Sara M. Bugin, Beth S. Ginsberg, & Karen M. McGaffey, *supra* note 49, at 35; GAO, GAO/RCED-89-38, WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS 15 (1989). EPA defines TMDL as “The sum of the individual [wasteload allocations] for point sources and [load allocations] for nonpoint sources and natural background. If a receiving water has only one point source discharger, the TMDL is the sum of that point source [wasteload allocation] plus the [load allocations] for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments.” 40 C.F.R. § 130.2(i) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 6. EPA considers background sources to include “loadings to the water body that come from sources outside the defined segment, such as loadings from upstream and estimated atmospheric deposition of a pollutant. Highly contaminated sediments and historical discharges that are a source of a toxicant may also be considered as background sources.” GALLAGHER & MILLER, *supra* note 43, at 62 n. 49 (citing EPA, TECHNICAL SUPPORT DOCUMENT FOR WATER QUALITY-BASED TOXICS CONTROL 68 (1991)). In *Scott v. Hammond*, 741 F.2d at 996, the Seventh Circuit Court of Appeals provided this simple and concise definition of TMDL: “A TMDL establishes a maximum daily discharge of pollutants into a waterway.”

⁸⁸ 40 C.F.R. § 130.2(i) (1997).

⁸⁹ 40 C.F.R. § 130.2(g) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 6. EPA defines “load allocation” as “[t]he portion of a receiving water’s loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to background sources.” *Id.* By nature, load allocations are “best estimates” of the discharges (loading) from nonpoint source and natural background sources. *See id.* Those estimates may range from “reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading.” *Id.*

⁹⁰ 40 C.F.R. § 130.2(h) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 6. EPA defines “wasteload allocation” as “[t]he portion of a receiving water’s loading capacity that is allocated to one of its existing or future point sources of pollution. [Wasteload allocations] constitute a type of water quality-based effluent limitation.” *Id.*

standards.⁹¹ A TMDL can be expressed in terms of chemical mass per unit of time, toxicity, or other appropriate measure.⁹² A TMDL must include a margin of safety to account for uncertainty about the relationship between the pollutant loads and the quality of the receiving water body or water body segment.⁹³

B. Developing TMDLs

The purpose of a TMDL is to allocate allowable discharges ("loads") among different pollutant sources so that the appropriate control actions can be taken and the

⁹¹ 40 C.F.R. § 130.2(f) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 6.

⁹² 40 C.F.R. § 130.2(i) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 6; GALLAGHER & MILLER, *supra* note 43, at 62. For example, the TMDLs EPA Region 2 established for the New York-New Jersey Harbor Complex include a TMDL for copper of 34.85 pounds per day total recoverable metal for municipal and industrial dischargers to the Raritan River/Bay below Fieldville Dam, and a TMDL for mercury of .119 pounds per day total recoverable metal for storm water discharges into Jamaica Bay. CWA 303(d): Establishment of Phased Total Maximum Daily Loads (TMDLs) for Copper, Mercury, Nickel and Lead in New York-New Jersey Harbor, 61 Fed. Reg. 1,930, 1,931 (1996).

⁹³ GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 7; 40 C.F.R. § 130.7(c) (1997). There is no requirement that establishment of allocations in connection with a TMDL under section 303(d) include consideration of costs and benefits of the restrictions, which is a requirement for setting water quality-based effluent limitations under section 302. See Karen M. Warzinski, David B. Sandalow, Sara M. Bugin, Beth S. Ginsberg, & Karen M. McGaffey, *supra* note 49, at 36-37. Unlike section 302, section 303(d) does not require consideration of "the relative costs and benefits of the limitations nor the economic and technological abilities of dischargers to comply with them. Rather, section 303 authorizes the establishment of stringent effluent limitations, regardless of their cost, when prior limitations based on technological and economic considerations are insufficient to attain the desired water quality." *Id.* (citations omitted). See *supra* note 49 for comment about section 302's requirements. While at first glance section 302 and section 303(d) may appear to overlap, the sections are different. See RODGERS, *supra* note 3, at § 4.18., for a discussion of section 302 and its relationship to section 303(d) ("The load allocation authority of Section 303(d) must be viewed independently of the [EPA] Administrator's power to establish 'water quality related effluent limitations' under Section 302.").

applicable water quality standards can be achieved.⁹⁴ The approach normally used to develop a TMDL for a particular receiving water involves five activities: 1) selection of the pollutant to consider; 2) estimation of the receiving water's assimilative capacity; 3) estimation of the pollution from all sources to the receiving water; 4) predictive analysis of pollution in the receiving water and determination of total allowable pollution load; and 5) allocation (with a margin of safety) of the allowable pollution among the different pollution sources in a way that achieves applicable water quality standards.⁹⁵ A separate TMDL is set for each pollutant or other stressor that needs to be reduced to meet water quality standards.^{95.1}

⁹⁴ GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 19. As already mentioned, a water body's pollutant sources can be point sources (direct discharges), nonpoint sources (overland flows), and/or natural background sources (groundwater and atmospheric deposition). *Id.* The appropriate control actions, then, are not limited to NPDES authorities. *See id.* According to EPA, control measures to implement TMDLs should be based on permit limitations, state and local authorities, and actions to reduce nonpoint source pollution. *See id.*

⁹⁵ GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 20. 40 C.F.R. § 130.7(c) sets the rules for developing TMDLs. *See* 40 C.F.R. § 130.7(c) (1997). A number of documents provide EPA guidance on establishing TMDLs and implementing section 303(d). The primary guidance documents are: GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76; Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Quality Branch Chiefs and TMDL Coordinators, EPA Regions I-X (Aug. 13, 1992) (on file with author); Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Quality Branch Chiefs, EPA Regions I-X (Oct 30, 1992) (on file with author); Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Quality Management Division Directors and Regional TMDL Coordinators, EPA Regions I-X (Nov. 26, 1993) (on file with author); Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to Regional Administrators and Division Directors Responsible for TMDL Programs, EPA Regions I-X (Aug. 9, 1996) (on file with author); Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA Regional Administrators and Regional Water Division Directors (Aug. 8, 1997) (on file with author); and Memorandum from Robert H. Wayland III, Director, Office of Wetlands, Oceans, and Watersheds, EPA, to Water Division Directors and Water Quality Branch Chiefs, EPA Regions I-X, and Directors of Great Water Body Programs (Aug. 27, 1997) (on file with author). A summary of EPA's guidance documents is available on the Internet. *See* Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *TMDL Overview*, Question 5 (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/nov96mtg/fsintro.html>>. Additional guidance should be forthcoming after a federal advisory committee on the TMDL program issues its committee report. EPA established the twenty member advisory committee in November 1996 pursuant to the Federal Advisory Committee Act, 5 U.S.C. app. 2 §§ 1-15. *See* FEDERAL ADVISORY COMMITTEE ON THE TOTAL MAXIMUM DAILY LOAD (TMDL) PROGRAM, DRAFT TMDL FEDERAL

C. Implementing TMDLs

Once a TMDL is established and approved by EPA, the pollutant load reductions identified through the development of the TMDL must be implemented.⁹⁶ In the words of EPA's Assistant Administrator for Water, "A TMDL improves water quality when the pollutant allocations are implemented, not when a TMDL is established. When the State or EPA identifies a water quality impairment on a section 303(d) list and then establishes the TMDL, we begin a water quality-based process, not end one."⁹⁷ State and federal regulators implement wasteload allocations (load limits for point sources) through limits incorporated in NPDES permits authorized under section 402.⁹⁸ Regulators implement load allocations (load limits for pollution from nonpoint sources and natural background sources) through "best management practices," which the TMDL regulations define as "measures or

ADVISORY COMMITTEE REPORT, at I.A-I.B (last modified Apr. 27, 1998) <<http://www.epa.gov/OWOW/tmdl/faca/toc.html>> [hereinafter DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT]. The committee is charged with "recommending ways to improve the effectiveness and efficiency of State, Tribal, and EPA programs under § 303(d) of the Clean Water Act." *Id.* The committee's report is expected in June 1998. EPA, *TMDL FACA Update* (last modified Mar. 9, 1998) <<http://www.epa.gov/OWOW/tmdl/factsht.html>>. Analysis of the modeling procedures and other techniques used to develop load allocations, wasteload allocations, and TMDLs is beyond the scope of this paper.

^{95.1} See EPA, DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY (last modified Feb. 12, 1998) 1.3 <<http://www.epa.gov/OWOW/tmdl/strategy/strathp.html>>.

⁹⁶ Neither section 303(d) nor the TMDL regulations actually require states to implement load reductions identified through development of TMDLs. See CWA § 303(d), 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7 (1997). However, section 303(e)(3)(C) and 40 C.F.R. §§ 130.5, 130.6 (1997) require state continuing planning processes and water quality management plans to include development and implementation of TMDLs. See CWA § 303(e)(3)(C), 33 U.S.C. § 1313(e)(3)(C); 40 C.F.R. §§ 130.5, 130.6 (1997).

⁹⁷ Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA Regional Administrators and Regional Water Division Directors, 4 (Aug. 8, 1997) (on file with author).

⁹⁸ GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 23; Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA

practices selected by an agency to meet its nonpoint source control needs.”⁹⁹

Control measures to implement load allocations may include regulatory or nonregulatory programs, technical assistance, training, education, financial assistance, technology transfer, and demonstration projects.¹⁰⁰

After implementing control measures to implement wasteload allocations and load allocations established through development of a TMDL, regulators must assess the receiving water to determine if the water quality standards have been attained or are no longer threatened.¹⁰¹ A receiving water may be removed from a state’s section 303(d) list of impaired waters once the water body or water body segment attains all applicable water quality standards or is expected to meet applicable standards in a reasonable amount

Regional Administrators and Regional Water Division Directors, 4 (Aug. 8, 1997) (on file with author).

⁹⁹ 40 C.F.R. § 130.2(m) (1997). Best management practices may include “structural and nonstructural controls and operation and maintenance procedures” and can be applied “before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters.” *Id.*

¹⁰⁰ GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 25. EPA’s Assistant Administrator for Water said nonpoint sources implement load allocations within TMDLs “through a variety of State, local, Tribal, and Federal programs (which may be regulatory, non-regulatory, or incentive-based, depending on the program), as well as voluntary action by committed citizens.” Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA Regional Administrators and Regional Water Division Directors, 4 (Aug. 8, 1997) (on file with author). “These programs and efforts for control of nonpoint sources,” the Assistant Administrator continued, “should be described in the State nonpoint source management program under section 319 of the CWA.” *Id.* The Assistant Administrator also said EPA’s guidance on implementation on TMDLs is incomplete because it fails to deal with implementation of TMDLs for waters impaired only by nonpoint sources or a blend of point and nonpoint sources in which nonpoint sources dominate. *Id.* at 5. The Advisory Committee on the Total Maximum Daily Load (TMDL) Program plans to address control measures for nonpoint sources in its final report. See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VI.F.

¹⁰¹ See GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 25. Regulators must develop and conduct a monitoring program to gather the information they will need to determine if the receiving water has attained applicable water quality standards or is no longer threatened. See *id.* The monitoring program should be designed based on the specific pollution problems or sources. *Id.*

of time as a result of implementation of required pollutant controls.¹⁰² If the water quality standards are not met, the TMDL and allocations (wasteload and load) must be modified.¹⁰³ As previously discussed, section 303(d)(4) specifies restrictions on the revision of any effluent limitation set based on a TMDL or wasteload allocation established under section 303.¹⁰⁴ Those restrictions cover revision of effluent limitations for both waters that equal or exceed applicable water quality standards and waters that do not meet applicable water quality standards.¹⁰⁵

V. Federal and State Compliance with CWA Section 303(d)

A. The 1970s: Little Action to Implement Section 303(d)

Section 303(d) requires states to submit their lists of water quality-limited waters and corresponding TMDLs from time to time, with the first

¹⁰² Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Management Division Directors and Regional TMDL Coordinators, EPA Regions I-X, 8 (Nov. 26, 1993); Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *Questions Addressed in TMDL Background Papers*, Question 8 to Background Paper # 1 (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/nov96mtg/back1.html>>. A receiving water may also be de-listed if new information shows that the original basis for listing the water is inaccurate. Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *Questions Addressed in TMDL Background Papers*, Question 8 to Background Paper # 1 (last modified Feb 12, 1998) <<http://www.epa.gov/OWOW/tmdl/nov96mtg/back1.html>>; Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Management Division Directors and Regional TMDL Coordinators, EPA Regions I-X, 8 (Nov. 26, 1993).

¹⁰³ See GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 25. The modification should be based on information gathered through monitoring. *See id.* This guidance may be revisited, though, as a background paper prepared for the TMDL Advisory Committee suggests de-listing may be appropriate even when waters with approved TMDLs do not meet applicable water quality standards. Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *Questions Addressed in TMDL Background Papers*, Question 8 to Background Paper # 1 (last modified Feb 12, 1998) <<http://www.epa.gov/OWOW/tmdl/nov96mtg/back1.html>>. The paper says de-listing “rewards States and helps them demonstrate progress in TMDL development.” *Id.* However, it asks “[W]hat degree of assurance that water quality standards will be met is needed in order to remove a water from the Section 303(d) list?” and “[W]hat does [de-listing] imply regarding the desired components of an approvable TMDL?” *Id.*

¹⁰⁴ See *supra* notes 82-86 and accompanying text. Since they have been explained already, there is no reason to address those restrictions here.

submission being no later than 180 days after EPA publishes its first identification of pollutants that are suitable for maximum daily load measurement correlated with the achievement of water quality goals.¹⁰⁵ Under section 304(a), EPA was required to publish its first identification of pollutants for which maximum loads can be determined by October 18, 1973 (one year after the CWA became effective).¹⁰⁷ However, EPA did not publish that first list until December 28, 1978, a little more than five years after the statutory deadline.¹⁰⁸ In that list, EPA said all pollutants, under the “proper

¹⁰⁵ CWA § 303(d)(4), 33 U.S.C. § 1313(d). See *supra* note 70 for text of section 303(d)(4).

¹⁰⁶ CWA §§ 303(d)(2), 304(a)(2)(D), 33 U.S.C. §§ 1313(d)(2), 1314(a)(2)(D). As previously mentioned, EPA defines “from time to time” as “every two years, beginning with 1992” for list of impaired waters. 40 C.F.R. § 130.7(d) (1997); *supra* text note 70. For TMDLs, wasteload allocations, and load allocations established under section 303(d), EPA defines “from time to time” as “pursuant to a schedule determined by the Regional Administrator and the state. 40 C.F.R. § 130.7(d) (1997). The text of the regulation actually says “Schedules for submission of TMDLs shall be determined by the Regional Administrator and the State.” *Id.* The EPA Administrator formally delegated authority to approve or disapprove section 303(d) lists to EPA Regional Administrators. Memorandum from Geoffrey Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Quality Branch Chiefs, EPA Regions I-X, 2 (Oct. 30, 1992). Regional Administrators, in turn, are authorized to redelegate approval/disapproval authority to their Water Management Division Directors. *Id.* In an August 9, 1996 memorandum, EPA’s Assistant Administrator for Water noted that final decision-making authority on section 303(d) lists is currently delegated to the Division Director responsible for the TMDL program in EPA’s Regional Offices. Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to Regional Administrators and Division Directors Responsible for TMDL Programs, EPA Regions I-X, 2 (Aug. 9, 1996). CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2), provides: “Each State shall submit to the Administrator from time to time, with the first submission not later than one hundred and eighty days after the date of publication of the first identification of pollutants under [section 304(a)(2)(D)], for his approval the waters identified and loads established under [sections 303(d)(1)(A)-(D)].”

¹⁰⁷ CWA § 304(a)(2)(D), 33 U.S.C. § 1314(a)(2)(D). Section 304(a) says: “The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish within one year after October 18, 1972 (and from time to time thereafter revise) information . . . (D) for the purpose of [section 303], on and the identification of pollutants suitable for maximum daily load measurement correlated with the achievement of water quality objectives.” CWA § 304(a)(2)(D), 33 U.S.C. § 1314(a)(2)(D).

¹⁰⁸ Total Maximum Daily Loads Under Clean Water Act, 43 Fed. Reg. 60,662 (1978); Lawrence S. Bazel, *Water Quality Standards, Maximum Loads, and The Clean Water Act: The Need for Judicial Enforcement*, 34 HASTINGS L.J. 1245, 1258 (1983). EPA issued a two volume document containing a draft identification of pollutants potentially suitable for TMDL determinations on October 26, 1973, but did not finalize the document. Total Maximum Daily Loads Under Clean Water Act, 43 Fed. Reg. at 60,664. EPA said it did not consider finalization of the draft document “a matter of high priority

technical conditions,” are suitable for the calculation of TMDLs.¹⁰⁹ EPA did not require, though, states to comply with section 303(d); its final notice said states could meet the requirements of the CWA by submitting, within 180 days, an identification of water quality-limited waters and at least one TMDL.¹¹⁰ In addition, the notice said priority rankings could be submitted pursuant to a schedule established in state/EPA agreements.¹¹¹ It also authorized future submissions of TMDLs to be made pursuant to state/EPA agreements.¹¹² One writer summarized EPA’s 1978 publication in these words: “EPA’s regulations delayed, soft-pedaled, and understated the § 303(d) requirements to a remarkable degree.”¹¹³

B. The 1980s: Forced Compliance with Section 303(d)

EPA’s 1978 regulations simply required one TMDL be submitted.¹¹⁴

One author speculated that when submission of a second TMDL would be

because many of the practical results of such an action are being accomplished in any event through the required State water quality management planning process under sections 20-8 and 303(e) of the Act. In particular, EPA’s regulations at 40 CFR § 131.11(f) and (g) include TMDL calculations and wasteload allocations as part of State water quality management plans.” *Id.* (errors in original). EPA published its final identification to comply with a court order. *Id.*; Board of County Comm’rs v. Costle, No. 78-0572, slip op. (D.D.C. June 20, 1978).

¹⁰⁹ Total Maximum Daily Loads Under Clean Water Act, 43 Fed. Reg. at 60,665.

¹¹⁰ *Id.* at 60,666; Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,393.

¹¹¹ Total Maximum Daily Loads Under Clean Water Act, 43 Fed. Reg. at 60,666; Houck, *TMDLs, Are We There Yet?*, *supra* note 11 at 10,393.

¹¹² Total Maximum Daily Loads Under Clean Water Act, 43 Fed. Reg. at 60,666; Houck, *TMDLs, Are We There Yet?*, *supra* note 11 at 10,393.

¹¹³ Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,393. Houck is a Professor of Law at Tulane University. See *id.* at 10,391. His article provides an excellent overview and discussion of EPA and the states’ efforts to comply with the requirements of section 303(d) and implement TMDLs. In an earlier article, Professor Houck provided an excellent review of the nature of water quality-based regulation and the history of CWA section 303. See Oliver A. Houck, *TMDLs: The Resurrection of Water Quality Standards-Based Regulation Under the Clean Water Act*, 27 ENVTL. L. REP. (Envtl. L. Inst.) 10,329 (July 1997). The reasons for EPA’s apparent attempt to avoid complying with section 303’s requirements are beyond the scope of this paper.

¹¹⁴ Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,393.

required “was anyone’s guess, as was what would constitute a TMDL.”¹¹⁵

Thus, the author concluded, “The stage was set for inaction.”¹¹⁶ Inaction occurred: a few states submitted a few lists as directed by EPA, but most states submitted nothing at all.¹¹⁷ EPA’s response to state inaction, based on a literal reading of the CWA, was to do nothing.¹¹⁸ EPA asserted that section 303 does not explicitly require EPA to act if a state fails to comply with section 303.¹¹⁹ The Seventh Circuit Court of Appeals disagreed with EPA and, in 1984, ruled that a prolonged failure of a state to submit proposed TMDLs for EPA review and approval constitutes a “constructive submission” of no TMDLs.¹²⁰ A submission of no TMDLs triggers EPA’s review, approval/disapproval, and promulgation duties under section 303(d).¹²¹ For the remainder of the 1980s, EPA treated the Seventh Circuit ruling as an aberration and continued to do nothing about TMDLs as long as the states did nothing.¹²² However, the Seventh Circuit’s “constructive submission” theory caught on and lawsuits in the late 1980s resulted in EPA being forced to take

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.* (citing *Scott v. City of Hammond*, 530 F. Supp. 288 (N.D. Ill. 1981), *aff’d in part, rev’d in part*, 741 F.2d 992 (7th Cir. 1984)). The District Court accepted EPA’s position that Congress did not intend for EPA to establish TMDLs if the states failed to act, but the Seventh Circuit Court of Appeals did not: it viewed a state’s failure over a long period of time to submit proposed TMDLs as a “constructive submission” by that state of no TMDLs. *Id.* at 10,393-94; *Scott v. Hammond*, 741 F.2d 992, 996-97 (7th Cir. 1984). EPA has a duty, the Seventh Circuit held, to either approve or disapprove the “submission” of no TMDLs. *Scott v. Hammond*, 741 F.2d at 996-97.

¹¹⁹ See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,393-94. See *supra* note 117 for more information about EPA’s position.

¹²⁰ See *Scott v. Hammond*, 741 F.2d at 996-97; Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,393-94.

¹²¹ See *Scott v. Hammond*, 741 F.2d at 996-97; Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,393-94.

¹²² Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,393.

action if states failed to do so.¹²³ Further prompting came from a General Accounting Office (GAO) report about EPA's efforts to ensure heavily polluted waters are being cleaned up.¹²⁴ The GAO report heavily criticized EPA for inaction and inadequate action regarding TMDLs.¹²⁵

C. The 1990s: More Litigation and More Action

¹²³ See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,393. A discussion of the litigation prompting federal action is beyond the scope of this paper. Professor Houck provides an excellent review of the TMDL litigation in his article. See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,392-95, 10,395-96. Another treatment of the TMDL suits was recently made by a law student at the University of Virginia. See Dianne K. Conway, *TMDL Litigation: So Now What?*, 17 VA. ENVTL. L.J. 83 (1997). EPA's Office of Wetlands, Oceans, and Watersheds maintains a TMDL litigation summary on the Internet. See EPA, *TMDL Litigation by State* (last modified Apr. 29, 1998) <<http://www.epa.gov/OWOW/tmdl/lawsuit1.html>>.

¹²⁴ See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,395; WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 1. Concerned that the billions of federal state, local, and private dollars spent on water pollution control had not achieved the CWA's fishable/swimmable goal and that adoption of stringent new pollution regulations may seriously hamper economic growth among businesses of all sizes, the Chairman, Subcommittee on Regulation and Business Opportunities, House Committee on Small Business asked GAO to assess how well EPA was ensuring that the heavily polluted waters are cleaned up. See WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 1, 18. The Chairman asked GAO to make its assessment based on a review of actions taken by EPA Region X and the states within Region X to implement the CWA's requirements to "clean up rivers that are still unable to meet state water quality standards, even after the construction of treatment plants." See *id.* At the time of the request, late July 1987, Region X was the lead EPA region for water quality programs. *Id.* at 18. The states in Region X are Alaska, Idaho, Oregon, and Washington. *Id.* at 2. Although it focused on Region X, during its study GAO contacted three other EPA regions to determine the extent to which other regions were complying with section 303(d)'s requirements. *Id.* at 18. Those other regions were Region II (based in New York City, New York), Region V (based in Chicago, Illinois) and Region IX (based in San Francisco, California). *Id.*

¹²⁵ See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,395. The report criticized EPA Region X as well as EPA headquarters. *Id.* It noted that Region X and EPA headquarters officials "generally acknowledge that TMDL requirements were a low priority prior to 1985." WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 24. In addition, the report noted that "EPA actions to implement the TMDL requirements of the [CWA] have largely been compelled through lawsuits." *Id.* The report concluded that EPA had no TMDL program, no schedule for implementing TMDLs, and no way of tracking state action regarding TMDLs. See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,395 (citing WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 34-36); WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 31, 34-36.

The lawsuits during the 1980s and the GAO report did not generate a quick change in EPA policy.¹²⁶ Change came slowly, but it did come.¹²⁷ In April 1991, EPA published a guidance document for implementing section 303(d).¹²⁸ Fifteen months later, in July 1992, EPA promulgated a deadline for the submission by the states of their lists of water quality-impaired waters.¹²⁹ In its report to Congress on the quality of our nation's waters as of 1994, though, EPA spoke of nationwide progress on water quality improvement without any mention of the process or progress of TMDLs.¹³⁰ EPA committed itself to distributing grant money for state nonpoint programs and promoting census-based "watershed planning," but did not actively implement section 303(d).¹³¹ According to one author, "Section 303(d) with its more objective and enforceable requirements remained, at the federal level, a voluntary program, one more thing the states might also do."¹³² The author said EPA remained minimally involved in implementation of section 303(d) until a new

¹²⁶ See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,395.

¹²⁷ See *id.* at 10,395.

¹²⁸ GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76; Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,395. EPA periodically supplements that guidance by memoranda to Regional Administrators and Division Directors Responsible for TMDL Programs. See *supra* note 94 for a listing of EPA's supplemental guidance on its 1991 guidance document and the TMDL program.

¹²⁹ Surface Water Toxics Control Program and Water Quality Planning and Management Program, 57 Fed. Reg. 33,040, 33,049-050 (1992); Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,395 (citing Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Quality Branch Chiefs, EPA Regions I-X (Oct 30, 1992) (on file with author)). The rule required states to submit their lists every two years, with the first list being due on October 22, 1992. 40 C.F.R. § 130.7(d)(1) (1997); Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Quality Branch Chiefs, EPA Regions I-X, 1 (Oct 30, 1992) (on file with author). The rule is codified as amended at 40 C.F.R. § 130.7(d) (1997).

¹³⁰ Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,395.

¹³¹ *Id.*

¹³² *Id.*

“wave” of lawsuits forced the agency to become more active and serious about implementing section 303(d).¹³³ As of April 29, 1998, EPA is subject to several court orders that either require EPA to establish TMDLs for various water quality-limited waters or “ensure that TMDLs are established” for impaired waters if the state fails to establish the TMDLs.¹³⁴ In addition, numerous suits have been filed since 1994 that seek to compel EPA to disapprove state submissions of water quality-limited segments, vacate approval of state submissions of impaired waters, identify water quality-limited segments, and/or develop TMDLs for impaired waters in different

¹³³ See *id.* at 10,395-36. Lawsuits challenged the quality of the state submissions under section 303(d) and the adequacy of EPA’s response to those submissions. *Id.* at 10,395-96. One suit asked the court to require EPA to develop a water quality-impaired waters list for a state that submitted no list until 1989 and then, by 1992, had only identified 36 impaired water bodies or water body segments. *Id.* (discussing Idaho’s Sportsmen’s Coalition v. Browner, 951 F. Supp. 962 (W.D. Wash. 1996)). The court found EPA’s approval of the state’s list to be arbitrary and contrary to law. *Id.* at 10,396. Under court order, EPA eventually approved a list of 962 water body segments. *Id.* Later, another court order required EPA to proceed, in cooperation with the State of Idaho, to develop a schedule for the development of TMDLs. *Id.* Eventually, the plaintiff challenged the adequacy of the EPA-state developed schedule, which allowed TMDLs to be developed over a 25-year period. *Id.* The court rejected EPA’s schedule and suggested that a completion date of five years would be “reasonable.” *Id.* On April 8, 1997, EPA submitted an eight-year schedule developed by Idaho and believed to be reasonable by all parties to the litigation. *Id.*; EPA, *TMDL Litigation by State* (last modified Apr. 29, 1998) <<http://www.epa.gov/OWOW/tmdl/lawsuit1.html>>. On June 24, 1997, the court granted EPA’s motion for dismissal and denied the plaintiff’s motion to order EPA to develop TMDLs. *Id.*

¹³⁴ EPA, *TMDL Litigation by State* (last modified Apr. 29, 1998) <<http://www.epa.gov/OWOW/tmdl/lawsuit1.html>>. EPA must establish TMDLs in Alaska and “ensure that TMDLs are established” if the appropriate state fails to set TMDLs for listed waters in Georgia, Newport Bay California and 17 rivers in northern California, Pennsylvania, Arizona, New Mexico, West Virginia, and Delaware. *Id.* Most of the orders set deadlines for development of the TMDLs. See *id.*

states.¹³⁵ Since June 1997, EPA has received five notices of intent to file citizen suits concerning implementation of section 303(d).¹³⁶

In addition to responding to TMDL lawsuits, EPA's current efforts to implement section 303(d) include formation of a Federal Advisory Committee Act (FACA) committee and preparation of a strategy document about implementing section 303(d)'s requirements.¹³⁷ EPA established the 20-member advisory committee in November 1996.¹³⁸ The members included state and local officials, a tribal consortium representative, farmers, a forestry representative, industry representatives, environmental advocacy group representatives, a law professor, and an environmental consultant.^{138.1} EPA charged the committee with "recommending ways to improve the effectiveness and efficiency of State, tribal, and EPA programs under § 303(d) of the Clean Water Act."¹³⁹ The committee will not complete and submit its

¹³⁵ EPA, *TMDL Litigation by State* (last modified Apr. 29, 1998) <<http://www.epa.gov/OWOW/tmdl/lawsuit1.html>>. Suits have been filed challenging submissions by or requesting EPA action regarding the following states: New York, Kansas, New Jersey, Louisiana, Oregon, North Carolina, Montana, Alabama, Colorado, Maryland, Oklahoma, Mississippi, and the District of Columbia. *Id.* A detailed discussion of past and current TMDL litigation is beyond the scope of this paper.

¹³⁶ EPA, *TMDL Litigation by State* (last modified Apr. 29, 1998) <<http://www.epa.gov/OWOW/tmdl/lawsuit1.html>>. The notices involve implementation in Alabama, Florida, California, Virginia, and South Dakota. *Id.* EPA has not publicly released details about these proposed lawsuits. *Id.*

¹³⁷ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at I.A-I.C; EPA, DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/strategy/strathp.html>>.

¹³⁸ DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at I.A-I.B. Federal advisory committees must comply with the Federal Advisory Committee Act (FACA). 5 U.S.C. App. 2 § 10. The FACA is codified at 5 U.S.C. App. 2 §§ 1-15.

^{138.1} *Id.* at I.B.

¹³⁹ *Id.* at I.B, app. at A-2. The committee saw itself as being tasked to "develop advice on new policy and regulatory directions for the [TMDL] program regarding its role in watershed protection, the identification of impaired waters, the pace of TMDL development, the science and tools needed to support the program, and the roles and responsibilities of States, Tribes and EPA in implementing the program." DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at I.A. The committee was charged with "identifying barriers to program success, recommending ways to

report until after its final public meeting in May 1998.¹⁴⁰ In late 1996, EPA released a draft strategy document on compliance with section 303(d).¹⁴¹ The document updates EPA's 1991 guidance document and explains "[EPA's] vision, priorities and the steps the Agency will take to help States meet [TMDL] program requirements."¹⁴² The document says EPA envisions the states remaining primarily responsible for implementing the program but EPA "will meet its legal responsibility to identify waters needing TMDLs and to develop TMDLs if State performance is inadequate."¹⁴³ It also says EPA intends to help states meet their section 303(d) obligations by "issuing and revising guidance, policy and regulations, and by providing technical assistance."¹⁴⁴ In addition, EPA plans to support and promote innovative approaches to developing and implementing TMDLs.¹⁴⁵ Although EPA originally intended to develop an interim and final version of the 1996 draft

overcome them, and suggesting criteria by which to measure the success of each recommendation implemented." *Id.* However, the committee's charge prohibited the committee from recommending statutory changes or changes to congressional appropriations. *Id.*

¹⁴⁰ See EPA, *TMDL FACA Update* (last modified Mar. 9, 1998) <<http://www.epa.gov/OWOW/tmdl/factsht.html>>. There have been six public meetings of the advisory committee. *Id.* The last meeting occurred May 4-6, 1998. *Id.* The committee plans to submit its final report to the EPA Administrator in June 1998. *Id.*

¹⁴¹ EPA, DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/strategy/strathp.html>> [hereinafter DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY].

¹⁴² *Id.* at 1.1; Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,397.

¹⁴³ DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 1.2.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.* at 3.8. EPA identified three examples of innovative measures it will support: watershed-based trading, instream monitoring by NPDES point source dischargers, and ecological restoration. *Id.* Watershed-based trading involves pollution sources selling or bartering their ability to reduce pollution with other sources that cannot reduce their pollutant loads as economically. *Id.* at 3.8.1. Monitoring will provide valuable instream data to help watershed managers make better management decisions. *Id.* at 3.8.2. ecological or habitat restoration helps "support diverse, productive communities of plants and animals." *Id.* at 3.8.3. Restoration can be implemented as part of a TMDL to meet a water quality standard. *Id.*

strategy document, the TMDL FACA Committee's work and other activities (including preliminary steps to revise the TMDL regulations) make it unlikely that EPA will issue another version of the draft document.¹⁴⁶

Although prompted largely by lawsuits, EPA and the states finally appear to be serious about accepting responsibility for inventorying, monitoring, and upgrading water quality-limited waters as required by section 303(d).¹⁴⁷ As of April 26, 1998, all states have EPA-approved 1996 section 303(d)(1) lists.¹⁴⁸ Development of TMDLs is proceeding at an increasing pace in some states, but most TMDLs have not been established.¹⁴⁹ However, as of June 5, 1998, only one state has failed to submit a list of 1998 water quality-limited segments to EPA.¹⁵⁰

D. Reasons for Delay and Inaction

¹⁴⁶ Electronic mail message from Amy B. Sosin, Environmental Scientist/TMDL Team Leader, Watershed Branch, Assessment and Watershed Protection Division, Office of Wetlands, Oceans, and Watersheds, Office of Water, EPA (May 6, 1998) (on file with author).

¹⁴⁷ See Oliver A. Houck, *Recent Developments in the Clean Water Act NPDES Program*, SC56 A.L.I.-A.B.A. 323, 325 (1998); WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 24. Professor Houck called this acceptance the "most significant" recent development under the CWA. See Oliver A. Houck, *Recent Developments in the Clean Water Act NPDES Program*, SC56 A.L.I.-A.B.A. 323, 325 (1998). Professor Houck said the TMDL program, pushed forward by more than two dozen lawsuits in over twenty states, has "the potential to put states -- willing or no -- into the business of serious abatement, particularly with regard to nonpoint sources -- the major outstanding water pollution problem of the nation." *Id.* "On the other hand," Houck continued, "with states somewhat less enthusiastic and forestry and agricultural interests flatly hostile to enforceable deadlines and implementation measures, progress here could stall at any time." *Id.* Nonpoint source pollution will be addressed later in this paper.

¹⁴⁸ DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at II.A. The content and scope of the lists vary greatly among the states. *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ EPA, *Status of 1998 Section 303(d) Lists (June 5, 1998)* (last modified June 5, 1998) <<http://www.epa.gov/owow/tmdl/tmdlmap.htm>>. Two states (North Carolina and Georgia) submitted final lists that have been approved by the appropriate EPA Region (Region 4). *Id.* Approximately 28 states and territories have submitted final lists, which are now being reviewed by EPA. *Id.* Approximately 13 states/territories have submitted draft lists. *Id.* Minnesota is the only state/territory that has not submitted any lists to EPA. *Id.* The lists were due April 1, 1998. 40 C.F.R. § 130.7(d)(1) (1997).

In 1989, the GAO reported that few TMDLs had been set for water bodies that states had identified under section 303(d) as being water quality-impaired.¹⁵¹ GAO identified two major factors that contributed to this situation: developing and implementing TMDLs was not a high priority for either EPA or the states; and EPA had no management system to track the development and implementation of TMDLs.¹⁵² The report said EPA headquarters officials “generally acknowledged” that TMDL requirements were a low priority before 1985.¹⁵³ The report also said EPA’s lack of a method for tracking TMDL development and implementation complicated “any effort to identify and resolve TMDL-setting problems.”¹⁵⁴

There are several reasons for EPA’s slowness in focusing attention on section 303(d) and ensuring compliance with the TMDL requirements. Among the primary reasons are limited resources and a concentration on funding and establishing discharge limits for wastewater treatment plants.¹⁵⁵ In addition, EPA spent much of

¹⁵¹ WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 20.

¹⁵² *Id.*

¹⁵³ *Id.* at 4, 24. For several years preceding the GAO study, EPA focused on “funding municipal sewage treatment plants and establishing discharge limits for municipal and industrial treatment plants.” *See id.*

¹⁵⁴ *Id.* at 20. EPA at least partially solved this problem in 1992 when it promulgated regulations that require the states to submit their lists of impaired water segments every two years. *See* Surface Water Toxics Control Program and Water Quality Planning and Management Program, 57 Fed. Reg. 33,040, 33,049-050 (1992); 40 C.F.R. § 130.7(d)(1) (1997); *supra* note 129 and accompanying text.

¹⁵⁵ Electronic mail message from Amy B. Sosin, Environmental Scientist/TMDL Team Leader, Watershed Branch, Assessment and Watershed Protection Division, Office of Wetlands, Oceans, and Watersheds, Office of Water, EPA (May 6, 1998) (on file with author); WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 4, 20, 24 (key emphasis for several years “has been funding municipal sewage treatment plants and establishing discharge limits for municipal and industrial treatment plants”). EPA’s focus on technology-based controls resulted from the CWA’s shift from controlling water pollution through enforcement of water quality standards to controlling pollution through technology-based effluent limitations and a point source discharge permit program. *See*

its attention and resources following passage of the FWPCA Amendments of 1972 defending the technology-based effluent limitations it set for point sources against challenges in court.¹⁵⁶ Furthermore, since the TMDL requirements only applied when polluted waters could not be brought up to standards through implementation of required technology-based controls, there was little (if any) need for EPA or the states to take action under section 303(d) before complying with the applicable technology requirements.¹⁵⁷ Compliance with those technology requirements took several years to achieve.¹⁵⁸

Several factors account for states' inaction or slowness to comply with section 303(d). Limited resources, emphasis on the technology-based controls of the CWA, and focus on other sections of the CWA or water quality programs that have congressionally mandated time frames are all reasons for failures by states to fully implement TMDL requirements.¹⁵⁹ In addition,

Environmental Defense Fund, Inc. v. Costle, 657 F.2d 275, 279 (D.C. Cir. 1981); Natural Resources Defense Council v. EPA, 915 F.2d at 1316-17; Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,392. The CWA's shift, of course, occurred with passage of the FWPCA Amendments of 1972. *See id.*; *supra* note 10 and accompanying text.

¹⁵⁶ Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,392. Professor Houck said EPA was "fully occupied, indeed overwhelmed," in issuing technology standards and defending legal challenges of those standards. *Id.*

¹⁵⁷ *Id.*

¹⁵⁸ *See id.* Before the requirements could be implemented, EPA had to develop them and then defend them in court. *See* Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,392. That took a lot of time and resources. *See id.*

¹⁵⁹ *See* WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 20-24; Electronic mail message from Amy B. Sosin, Environmental Scientist/TMDL Team Leader, Watershed Branch, Assessment and Watershed Protection Division, Office of Wetlands, Oceans, and Watersheds, Office of Water, EPA (May 6, 1998) (on file with author); Electronic mail message from Amy B. Sosin, Environmental Scientist/TMDL Team Leader, Watershed Branch, Assessment and Watershed Protection Division, Office of Wetlands, Oceans, and Watersheds, Office of Water, EPA (May 14, 1998) (on file with author); EPA, EPA 840-R-98-001, CLEAN WATER ACTION PLAN: RESTORING AND PROTECTING AMERICA'S WATERS 15-16, 17-18 (1998) [hereinafter CLEAN WATER ACTION PLAN].

TMDLs can be difficult and costly to develop and implement.¹⁶⁰ Regardless, section 303(d) only requires states to submit lists of impaired water segments and corresponding TMDLs “from time to time,” with the first submissions not due until 180 days after EPA identifies which pollutants are “suitable for maximum daily load measurement correlated with the achievement of water quality objectives.”¹⁶¹ As a result, until EPA issued regulations that defined “from time to time” as “biennially, beginning with 1992” and identified all pollutants as suitable for TMDL development, there was no enforceable requirement for the states to do anything about section 303(d).¹⁶² In addition, to the other factors mentioned, section 303(d) imposes only one consequence for a state’s failure to comply with the section’s requirements: EPA must

¹⁶⁰ See WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 26 (establishing TMDLs for a water quality-limited segment can be an easy or difficult process); Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *Summary of Meeting Two*, Presentation and Panel Discussion: State Perspectives on the TMDL Program, Feb. 19, 1997 (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/feb97mtg/mtg2sum.html>> (TMDL development costs in Georgia can range from \$75,000 for a small, relatively simple water body to \$5 million to apply a dynamic water quality model to a 75-mile stretch of the Chatahoochee River; estimated cost of implementing best management practices to achieve water quality standards in Georgia is \$6 million). TMDLs may be easy to set where water quality standards are not met because one source is discharging one pollutant, but can be very difficult to establish when multiple dischargers and/or pollutants impair the water quality of a particular segment. See WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 26.

¹⁶¹ See CWA §§ 303(d)(2), 304(a)(2)(D), 33 U.S.C. §§ 1313(d)(2), 1314(a)(2)(D).

¹⁶² Section 303(d) still required the states to identify water quality-impaired segments and establish TMDLs for those segments. CWA § 303(d)(1), 33 U.S.C. § 1313(d)(1). However, there was no strong incentive for identifying those segments or setting TMDLs before EPA issued TMDL information under section 304(a)(2)(D): if the state set TMDLs and tried to implement them before EPA took action, additional action by the state would be needed if EPA’s section 304(a)(2)(D) information included pollutants that the state’s TMDLs did not cover. Also, the state’s TMDLs and TMDL implementation measures might be replaced by EPA-developed TMDLs and control measures if EPA eventually disapproved the state’s section 303(d) identification of impaired water segments and corresponding TMDLs. For state environmental regulatory agencies with limited budgets and staffs, the revision or replacement risk created by implementing section 303(d) before EPA took action probably outweighed the benefit to be achieved by “early” compliance with section 303(d) and made the early compliance option impracticable.

identify water quality-limited waters for the state and must establish TMDLs for those impaired water segments that will enable the segments to attain applicable water quality standards.¹⁶³ For any state with limited regulatory agency budgets and personnel, having EPA determine water quality-limited segments and set TMDLs for those segments may not be objectionable.

VI. The Impact of TMDLs on NPDES Permit Holders

A. Permit Holders and Waters Subject to TMDLs

In fiscal year 1997 (FY97), there were a total of 72,319 NPDES permit holders nationwide.¹⁶⁴ Six thousand six hundred and thirty of those permittees were "major" and 65,689 were "minor" permit holders.¹⁶⁵ Those permittees included wastewater treatment facilities, power plants, industrial facilities, and research laboratories.¹⁶⁶ NPDES permit holders discharge into a variety of water bodies, including rivers and streams, lakes and reservoirs, and estuaries.¹⁶⁷ In both its 1994 and 1996 reports to Congress on the quality of

¹⁶³ See CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2).

¹⁶⁴ EPA, Permit Compliance System, April 1998; Electronic mail message from Kelly Conrad, Environmental Engineer, Federal Facilities Enforcement Office, Office of Enforcement and Compliance Assurance, EPA (May 1, 1998) (on file with author).

¹⁶⁵ *Id.* In the same year, 125 major and 1,084 minor permittees were federal facilities. *Id.* The impact of TMDLs on federal facilities with NPDES permits will be addressed later in this paper. EPA defines a "major" permit holder as "Any NPDES facility or activity classified as such by the Regional Administrator, or in the case of approved State programs, the Regional Administrator in conjunction with the State Director. Major municipal dischargers include all facilities with design flows of greater than 1 MGD [(million gallons per day)] and facilities with EPA/State approved industrial pretreatment programs. Major industrial facilities are determined based on specific ratings criteria developed by EPA/State." EPA, EPA 833-B-96-003, US EPA NPDES PERMIT WRITERS' MANUAL G-7 (1996); Electronic mail message from Kelly Conrad, Environmental Engineer, Federal Facilities Enforcement Office, Office of Enforcement and Compliance Assurance, EPA (May 1, 1998) (on file with author). A "minor" permit holders is a permittee that has not been classified as a major permit holder. See *id.*

¹⁶⁶ See EPA, Permit Compliance System, April 1998.

¹⁶⁷ See EPA, EPA 841-F-95-011, FACT SHEET, NATIONAL WATER QUALITY INVENTORY: 1994 REPORT TO CONGRESS 1-4, 6-7 (1995) [hereinafter 1994 WATER QUALITY FACT

our nation's waters, EPA reported that approximately 40 percent of the nation's surveyed rivers, lakes, and estuaries were too polluted for basic uses, such as fishing and swimming.¹⁶⁸ More precisely, 36 percent of river miles surveyed, 37 percent of the lake acres surveyed, 97 percent of Great Lakes shoreline miles surveyed, and 37 percent of the square miles of estuaries surveyed for the 1994 report were deemed to be impaired.¹⁶⁹ For the 1996 report, 36 percent of the river miles surveyed, 39 percent of the lake acres

SHEET]; EPA, EPA 841-F-97-003, REPORT BROCHURE, NATIONAL WATER QUALITY INVENTORY: 1996 REPORT TO CONGRESS (1998) [hereinafter 1996 WATER QUALITY BROCHURE].

¹⁶⁸ 1994 WATER QUALITY FACT SHEET, *supra* note 167, at 1; 1996 WATER QUALITY BROCHURE, *supra* note 167, at 1. EPA analyzed and summarized data submitted to it by states, tribes, interstate water commissions, and territories. *Id.* For the 1994 report, the states and other jurisdictions collected the information during 1992 and 1993. 1994 WATER QUALITY FACT SHEET, *supra* note 167, at 1. For the 1996 report, the jurisdictions gathered data during 1994 and 1995. 1996 WATER QUALITY BROCHURE, *supra* note 167, at 1. EPA prepares a national water quality inventory and report every two years, pursuant to CWA section 305(b). 1994 WATER QUALITY FACT SHEET, *supra* note 167, at 1; 1996 WATER QUALITY BROCHURE, *supra* note 167, at 1; CWA § 305(b)(2), 33 U.S.C. § 1315(b)(2). EPA published its biennial report for 1994 in December 1995 and its report for 1996 in April 1998. EPA, EPA 841-S-95-004, THE QUALITY OF OUR NATION'S WATER: 1994 (1995); EPA, EPA 841-S-97-001, THE QUALITY OF OUR NATION'S WATER: 1996 (1998). Although it was published in 1995 and addresses data that was collected in 1992 and 1993, the 1994 report is referred to as a 1994 report since it deals with information that was gathered during the 1994 reporting period. *See id.* at 2. This December 1995 publication will be referred to as a 1994 report in this paper. Similarly, the April 1998 publication will be referred to as a 1996 report in this paper since it deals with data collected during the 1996 reporting period. The 1994 report was the tenth national water quality report EPA has submitted to Congress since 1975. EPA, EPA 841-F-95-010, WATER QUALITY CONDITIONS IN THE UNITED STATES, A PROFILE FROM THE 1994 NATIONAL WATER QUALITY INVENTORY REPORT TO CONGRESS 1 (1995).

¹⁶⁹ EPA, EPA 841-S-95004, THE QUALITY OF OUR NATION'S WATER: 1994 13, 15, 18, 21, 25 (1995) [hereinafter 1994 NATIONAL WATER QUALITY REPORT]; 1994 WATER QUALITY FACT SHEET, *supra* note 167, at 2-6. EPA reported that these numbers are consistent with the numbers reported in 1992 and show that, "on the whole, we have managed to 'hold the line' or prevent further degradation. However, more work is needed if we are to achieve our Nation's clean water goals." 1994 WATER QUALITY FACT SHEET, *supra* note 167, at 1. It is important to note that the states, tribes, territories, and water commissions gathering the data did not survey all of the nation's total miles and acres of water bodies. 1994 NATIONAL WATER QUALITY REPORT, *supra* note 169, at 6; 1994 WATER QUALITY FACT SHEET, *supra* note 167, at 1, 3, 6. They only surveyed 17 percent of the nation's total miles of rivers and streams, 42 percent of the nation's total acres of lakes, reservoirs, and ponds, and 9 percent of the nation's total miles of ocean shoreline. *Id.* However, the data gatherers surveyed 78 percent of the nation's total square miles of estuaries and 94 percent of the Great Lakes shoreline. 1994 NATIONAL WATER QUALITY REPORT, *supra* note 169, at 6.

assessed, 97 percent of the Great Lakes shoreline miles surveyed, and 38 percent of the square miles of estuaries surveyed were impaired.^{169.1} EPA defined “impaired waters” as water bodies and water body segments whose water quality does not meet or only partially meets designated use criteria.¹⁷⁰ Discharges from point sources (namely, municipal sewage treatment plants) were the second leading source of water quality impairment in the rivers and lakes that were surveyed for the 1994 report and were the second (municipal sewage treatment plants) and fourth (paper mills, chemical manufacturing plants, food processing plants, and other industrial point sources) leading source of impairment in the estuaries that were surveyed.¹⁷¹ For the 1996 reporting period, discharges from municipal sewage treatment plants were the second leading source of water quality impairment in the rivers, third leading source of impairment in the estuaries, and the fifth leading source of impairment in the lake waters that were surveyed.^{171.1} Industrial discharges

^{169.1} EPA, EPA 841-S-97-001, THE QUALITY OF OUR NATION’S WATER: 1996 14-15, 17, 21, 24 (1998) [hereinafter 1996 NATIONAL WATER QUALITY REPORT]; 1996 WATER QUALITY BROCHURE, *supra* note 167, at 1-2, 3-4, 5-6; CLEAN WATER ACTION PLAN, *supra* note 159, at 7. The states, tribes, territories, and interstate water commissions surveyed 19 percent of the nation’s total miles of rivers and streams, 40 percent of the nation’s total acres of lakes, reservoirs, and ponds, and 6 percent of the nation’s total miles of ocean shoreline. 1996 WATER QUALITY BROCHURE, *supra* note 167, at 1-2, 3-*Id.* They also surveyed 72 percent of the nation’s total square miles of estuaries and 94 percent of the Great Lakes shoreline. *Id.* These figures are slightly lower than the number of waters surveyed for the 1994 report. See 1994 NATIONAL WATER QUALITY REPORT, *supra* note 169, at 6.

¹⁷⁰ See 1996 NATIONAL WATER QUALITY REPORT, *supra* note 169.1, at 6-7; 1994 NATIONAL WATER QUALITY REPORT, *supra* note 169, at 5-6.

¹⁷¹ *Id.* at 12. Runoff from crop production, pastures, rangeland, and other agricultural activities was the leading source of impairment in rivers and lakes. *Id.* at 11-12. Runoff from impervious surfaces including streets, parking lots, buildings, lawns, and other paved areas was the leading source of impairment in estuaries. *Id.* Agricultural runoff was the third leading source of impairment in estuaries. *Id.* The nonpoint source water pollution problem will be addressed later in this paper.

^{171.1} 1996 NATIONAL WATER QUALITY REPORT, *supra* note 169.1, at 12, 13, 15, 19, 25. Runoff from crop production, pastures, feedlots, and other agricultural activities was the leading source of

(pulp and paper mills, chemical manufacturing plants, textile mills, and other industrial point sources) were the leading source of impairment to estuarine waters.^{171.2} It is clear from the 1994 and 1996 reports, as well as from the earlier 1992 report, that technology-based controls on point sources are insufficient to ensure our nation's waters attain and maintain applicable water quality standards.^{171.3} Consequently, TMDLs the states and EPA establish include wasteload allocations for the point sources that discharge into the impaired water segments.

B. Imposing TMDLs on Permit Holders

A TMDL specifies the maximum allowed daily discharge of pollutants into a receiving water.¹⁷² For a specific pollutant, a TMDL is the sum of wasteload allocations set for point sources, load allocations attributed to nonpoint sources and natural background, and a margin of safety that accounts for the uncertainty about the relationship between the pollutant loads (discharges into the receiving water) and the quality of the receiving water.¹⁷³ A wasteload allocation establishes the level of effluent quality a point source's

impairment in rivers and lakes. *Id.* at 12, 13, 15, 19. Agricultural runoff was the fifth leading source of impairment in estuarine areas. *Id.* at 13, 25-26. The nonpoint source water pollution problem will be addressed later in this paper.

^{171.2} *Id.* at 12, 13, 25. Runoff from impervious surfaces including streets, parking lots, buildings, lawns, and other paved areas was second leading source of impairment in estuaries. *Id.* at 12, 13, 26. Pollution from upstream sources was the fourth leading source of impairment in estuaries. *Id.* at 13, 26. Nonpoint source pollution will be addressed later in this paper.

^{171.3} In 1995, EPA said that the impairment percentages reported to Congress for the 1994 reporting period were consistent with those reported to Congress for the 1992 reporting period. *See* 1994 WATER QUALITY FACT SHEET, *supra* note 167, at 1; EPA, EPA 841-F-95-010, WATER QUALITY CONDITIONS IN THE UNITED STATES, A PROFILE FROM THE 1994 NATIONAL WATER QUALITY INVENTORY REPORT TO CONGRESS 1 (1995).

¹⁷² *See* Scott v. Hammond, 741 F.2d at 996.

discharges into the impaired water segment must meet to protect water quality in the receiving water and ensure attainment of applicable water quality standards.¹⁷⁴ As such, a wasteload allocation is a type of water quality-based discharge limitation.¹⁷⁵ Wasteload allocations are implemented through incorporation in the point source's NPDES permits.¹⁷⁶ In its 1996 draft TMDL implementation strategy document, EPA said TMDLs that allocate pollutant loads to NPDES permit holders "carry the best assurance that they will be implemented" since point source dischargers are subject to direct federal and state regulatory requirements, as well as the possibility of citizen lawsuits to enforce permit conditions.¹⁷⁷

C. Current and Future Trends

1. Litigation

¹⁷³ See 40 C.F.R. § 130.2(i) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 6-7.

¹⁷⁴ See 40 C.F.R. §§ 130.2(f), (h) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 23.

¹⁷⁵ See 40 C.F.R. § 130.2(h) (1997).

¹⁷⁶ GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 23. To impose a wasteload allocation, the permitting authority may have to modify, revoke and reissue, or terminate a NPDES permit in some cases. See *Sierra Club v. Hankinson*, 939 F. Supp. 872, 873 (N.D. Ga. 1996). Interestingly, section 303(d) does not require the states or EPA to actually implement TMDLs established for impaired waters. See CWA § 303(d), 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7 (1997). However, section 303(e) requires states to make approved TMDLs part of their continuing planning process regarding water quality management. See CWA § 303(e)(3)(C), 33 U.S.C. § 1313(e)(3)(C); 40 C.F.R. § 130.5(b)(3) (1997). The TMDL FACA Committee's draft final report recommends that EPA issue regulations that require states to prepare a TMDL implementation plan and schedule. DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at V.I.E. Committee members did not agree on whether the implementation plan should be required under section 303(d) (as part of the TMDL) or under section 303(e) (as part of the state's continuing planning process), so agreed to recommend that EPA's regulations require the plan be submitted "as part of or at the same time as each TMDL." *Id.* Other advisory committee recommendations will be addressed later in this paper.

¹⁷⁷ See DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 3.4.

EPA is currently subject to a number of court orders and consent decrees to establish TMDLs if states fail to establish them within a prescribed time period.¹⁷⁸ As of April 29, 1998, court orders and consent decrees require EPA to set TMDLs in 11 different states if the states fail to promulgate TMDLs within a specified time.¹⁷⁹ Litigation is pending in 12 other states plus the District of Columbia that seeks to compel EPA to identify water quality-limited waters in those states and/or establish TMDLs for impaired waters identified in those states.¹⁸⁰ The TMDLs established as a result of the TMDL lawsuits will likely mean more stringent discharge limitations for many NPDES permit holders since regulators tend to use TMDLs to control point source discharges more than they use them to regulate loadings from nonpoint sources.¹⁸¹

2. EPA Policy and Guidance

In its December 1996 draft TMDL implementation strategy document, EPA indicated that following the 1998 section 303(d) listing process, EPA will either revise the TMDL regulations or issue additional guidance regarding

¹⁷⁸ EPA, *TMDL Litigation by State* (last modified Apr. 29, 1998) <<http://www.epa.gov/OWOW/tmdl/lawsuit1.html>>.

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

¹⁸¹ See Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *TMDL Overview*, Question 3 (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/nov96mtg/fsintro.html>> (“Historically, the typical TMDL has been developed as a wasteload allocation, considering a particular water body segment, for a particular point source, in order to support setting effluent limitations in that point source’s National Pollution Discharge Elimination System (NPDES) discharge permit.”); DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 2.1 (“Most TMDLs developed to date have addressed water body segments containing only a single point source discharger.”).

preparing section 303(d) lists.¹⁸² The revisions or additional guidance will address the conditions under which a TMDL need not be established and when a water need not be listed as impaired.¹⁸³ EPA will also explain when and how actions done to meet other federal, state, or local requirements can be used instead of a TMDL to meet TMDL program mandates.¹⁸⁴ The strategy document also indicated that EPA will promote and support innovative methods of satisfying TMDL program requirements, such as watershed-based trading, habitat restoration, and instream monitoring by NPDES permit holders.¹⁸⁵

In early August 1997, EPA's Assistant Administrator for Water sent a memorandum to EPA Regional Administrators and Water Division Directors.¹⁸⁶ The memorandum announced a new policy for establishing and implementing TMDLs.¹⁸⁷ That policy encouraged each EPA Region to enter

¹⁸² DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 3.1.3.

¹⁸³ *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ *Id.* at 3.8. Watershed-based trading involves point sources or nonpoint sources of pollution selling or trading their ability to reduce pollution with other pollution sources that are unable to reduce their pollutant loads as economically. *See id.* at 3.8.1; EPA, EPA 800-R-96-001, DRAFT FRAMEWORK FOR WATERSHED-BASED TRADING xv (1996) [hereinafter DRAFT FRAMEWORK FOR WATERSHED-BASED TRADING]. Habitat, or ecological, restoration techniques can eliminate many water quality impairments and can be carried out as part of a TMDL to meet a water quality standard. *See* DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 3.8.3. Data generated from instream, or ambient, monitoring can be used to make better watershed management decisions. *See id.* at 3.8.2. The draft strategy document said EPA currently provides voluntary incentive for NPDES permittees to conduct instream monitoring: eligible dischargers can reduce reporting and monitoring requirements by demonstrating excellent historical performance. *Id.* Additional reductions in reporting and monitoring requirements may be granted to eligible permittees that volunteer to gather or provide additional instream monitoring data. *Id.*

¹⁸⁶ Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA Regional Administrators and Regional Water Division Directors (Aug. 8, 1997) (on file with author).

¹⁸⁷ *Id.* at 2. The memorandum actually announced two policies regarding TMDLs but the second one concerns water segments impaired solely or primarily by nonpoint sources and is not relevant at this

into a separate written agreement with each state in the Region that sets an appropriate schedule for setting TMDLs for all waters on the state's 1998 section 303(d) list.¹⁸⁸ It also said each state schedule should reflect the state's own priority ranking of the listed waters and be expeditious.¹⁸⁹ The policy gave 8 to 13 years as the normal time period for completing TMDL development and said that time period could be "shorter or slightly longer" depending on state-specific factors such as: number of impaired segments; size of water segments requiring TMDLs; number and relative complexity of the TMDLs; availability of monitoring data or models; and relative importance of the environmental harm or threat.¹⁹⁰ This policy may change over time if EPA adopts the TMDL FACA Committee's plan to recommend allowing states not more than 8 to 15 years to complete TMDL development for low priority waters and not more than 5 years to develop TMDLs for high priority waters.¹⁹¹

In late August 1997, EPA headquarters issued guidance to EPA Region Water Division Directors and Water Quality Branch Chiefs regarding the preparation of 1998 section 303(d) lists.¹⁹² Among other things, the memorandum said states and territories should include on their lists water

point in this paper. *See id.* at 4. . The policy regarding nonpoint sources will be addressed later in this paper.

¹⁸⁸ *Id.* at 3.

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

¹⁹¹ DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at V.A. Under the FACA Committee's plan, the clock starts ticking for TMDL development once a state includes the TMDL's corresponding impaired water body on a section 303(d) list. *See id.*

bodies that do not meet an applicable water quality standard solely or partially due to pollutant loadings from atmospheric deposition (i.e., airborne pollutants).¹⁹³ In addition, states and territories should include on their lists water segments that are impaired by an unknown source or an unidentified pollutant.¹⁹⁴ Furthermore, the memorandum said waters that presently meet applicable water quality standards but are expected to exceed those standards before the next listing (i.e., April 1, 2000) should be included on the section 303(d) lists as “threatened waters.”¹⁹⁵ However, the guidance memorandum authorized states and territories to remove from their 1998 lists previously listed water segments for which EPA had approved TMDLs.¹⁹⁶

Requiring states (or EPA, when states fail to act) to include on their section 303(d) lists waters that are impaired by atmospheric deposition, unknown sources, or unidentified pollutants will increase the number of TMDLs states (or EPA) must develop.¹⁹⁷ Similarly, including threatened waters on section 303(d) lists will increase the number of TMDLs that must be developed.¹⁹⁸ Developing additional TMDLs may consume a lot of time and resources (including money), but any additional restrictions imposed on

¹⁹² Memorandum from Robert H. Wayland III, Director, Office of Wetlands, Oceans, and Watersheds, EPA, to Water Division Directors and Water Quality Branch Chiefs, EPA Regions I-X, and Directors of Great Water Body Programs (Aug. 27, 1997) (on file with author).

¹⁹³ *Id.* at 2-3.

¹⁹⁴ *Id.* at 3-4.

¹⁹⁵ *Id.* at 4-5.

¹⁹⁶ *Id.* at 5-6. For water segments that are impaired by more than one pollutant, though, removal was only authorized for regarding those pollutants for which EPA had approved TMDLs. *Id.* at 6.

¹⁹⁷ Section 303(d) requires TMDLs be established for waters included that are identified as impaired under sections 303(d)(1)(A)-(B). CWA §§ 303(d)(1)(C)-(D), 33 U.S.C. §§ 1313(d)(1)(C)-(D); 40 C.F.R. § 130.7(c) (1997).

¹⁹⁸ See *supra* note 197.

NPDES permit holders as a result of the additional TMDLs should maintain or improve the quality of the receiving waters. However, allowing states to exclude from their section 303(d) lists impaired waters for which EPA-approved TMDLs exist will not further the goals of the CWA since having a TMDL is not the same thing as implementing a TMDL.¹⁹⁹

3. TMDL FACA Committee Recommendations

The TMDL FACA Committee plans to make several recommendations that, if implemented, will probably affect NPDES permit holders. For example, the Committee plans to recommend that states make section 303(d) listing decisions based on data obtained from monitoring instream waters.²⁰⁰ Monitoring requirements will likely translate into monitoring and reporting requirements, as well as increased expenses, for point source dischargers.²⁰¹ The Committee also plans to recommend that EPA revise its regulations to only allow states to remove a water segment from a section 303(d)(1) list

¹⁹⁹ Only a few weeks earlier, EPA's Assistant Administrator for Water said "A TMDL improves water quality when the pollutant allocations are implemented, not when a TMDL is established. When the State or EPA identifies a water quality impairment on a section 303(d) list and then establishes the TMDL, we begin a water quality-based process, not end one." Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA Regional Administrators and Regional Water Division Directors, 4 (Aug. 8, 1997) (on file with author). In light of Mr. Perciasepe's statement and the requirement to list waters impaired by atmospheric deposition, unknown sources, or unidentified pollutants, it seems odd that EPA would allow states preparing their section 303(d) lists to ignore impaired waters for which TMDLs have been approved by EPA but not yet implemented (and, perhaps, not yet effective at ensuring our nation's waters meet applicable water quality standards).

²⁰⁰ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at III.A. 40 C.F.R. § 130.7(b)(5) requires states to base their listing decisions on "all existing and readily available water quality-related data and information," which includes both monitored data and evaluated information. 40 C.F.R. § 130.7(b)(5) (1997); DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at III. "Monitored data" involves direct measurements of water quality. DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at III. "Evaluated information" involves an indirect assessment of water quality through such information as historical adjacent land use, location of sources, results from predictive modeling using input variables, riparian health and habitat, and results from surveys of fish and wildlife. *Id.*

when the listed water has attained water quality standards or new information indicates that the original basis for listing is inaccurate (i.e., the new information indicates that the listed water actually meets applicable water quality standards).²⁰² Keeping waters on section 303(d) lists until they meet all applicable water quality standards should increase the chances of TMDLs actually being implemented since establishing TMDLs for those waters will not remove them from the reach of EPA's scrutiny and regulations.^{202.1}

Additional proposed recommendations of the TMDL FACA Committee include creating regulations that require states to "set expeditious timeframes, of not more than 8-15 years," for completing TMDL development, and making regulations that require states to prepare an

²⁰¹ See *id.*

²⁰² *Id.* at III.E.

^{202.1} EPA currently allows states to remove listed waters if those waters meet applicable water quality standards, are expected to meet applicable standards in a reasonable amount of time as a result of implementation of required pollutant controls, or if new information indicates the original basis for listing is inaccurate. Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Management Division Directors and Regional TMDL Coordinators, EPA Regions I-X, 8 (Nov. 26, 1993); Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *Questions Addressed in TMDL Background Papers*, Question 8 to Background Paper # 1 (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/nov96mtg/back1.html>>. This recommendation about addressing removal from section 303(d) lists in EPA regulations seems at odds with the Committee's failure to come to agreement about whether states should be able to exclude from their section 303(d) lists impaired waters for which there are established and approved TMDLs that are being implemented or are subject to an implementation schedule and are expected to result in the impaired water meeting water quality standards. See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at III.C. The Committee draft final report says EPA's current policy of not listing "expected to meet" waters is stated in EPA's 1991 guidance document. *Id.* However, that policy is actually stated in a memorandum EPA headquarters sent to Regional Water Quality Branch Chiefs and TMDL Coordinators to supplement the 1991 guidance document. Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA, to Water Quality Branch Chiefs and TMDL Coordinators, EPA Regions I-X, 1-3 (Aug. 13, 1992) (on file with author). The Committee agreed, though, that "expected to meet" waters should be carefully tracked for progress toward attainment of applicable water quality standards. DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at III.C. It will be interesting to see if the Committee resolves

implementation plan when they develop TMDLs.²⁰³ That implementation plan should include the scheme and schedule for implementing control or restoration measures to eliminate the impairment.²⁰⁴ The Committee believes implementation plans should include at least nine specific components, including a description of actions that will be taken to enforce the TMDL and revise the plan as needed to ensure the attainment of water quality standards.²⁰⁵ If implemented, the Committee's recommendations will force states to set deadlines for developing TMDLs and require states to create TMDL implementation plans. They will also give EPA approval authority over state implementation plans. Such new requirements should result in TMDLs actually being set and executed.^{205.1} However, these requirements and the Committee's discussion do not specify what EPA must or should do if states fail to submit acceptable implementation plans or fail to meet the deadlines specified for developing TMDLs. They also do not specify deadlines for

the apparent conflict between its approach to "expected to meet" waters and regulations about removing waters from section 303(d)(1) lists before it issues its final report.

²⁰³ TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at V.A, VI.A.

²⁰⁴ *Id.* at VI.A, VI.C, VI.E..

²⁰⁵ *See id.* at VI.E. For point sources, the description of implementation actions requires the plan to include a list of NPDES permits and corresponding wasteload allocations and the schedule for revision of any NPDES permits that require revision to incorporate the TMDL allocations. *Id.* The nine components the FACA Committee intends to recommend are: 1) description of actions that will be implemented to achieve the TMDL; 2) a schedule for implementing the described actions; 3) legal authorities under which the control actions will be carried out; 4) reasonable assurances that nonenforceable actions for nonpoint sources will result in achieving the load allocations required by TMDLs; 5) an estimate of the time needed to attain applicable water quality and a showing that the standards will be met as expeditiously as practicable; 6) a monitoring plan to determine the effectiveness of the implementing actions; 7) measurable milestones for deciding if the implementation plan is being properly executed and whether applicable water quality standards are being achieved; 8) the ramifications of failing to meet the milestones; and 9) a schedule for revising the state's continuing planning process and applicable water quality management plans. *Id.*

implementing TMDLs, which means EPA may approve an implementation plan that calls for implementation of TMDLs over a long period of time as long as the state demonstrates that its plan will achieve applicable water quality standards as expeditiously as practicable.

The TMDL FACA Committee discussed but came to no agreement on how the TMDL program should address waters impaired by atmospheric deposition.²⁰⁶ The Committee members agreed that waters may be impaired due to pollutant loadings from the atmosphere (i.e., air sources).^{206.1} The members also agreed that atmospheric deposition may be important to many water quality problems.^{206.2} However, the members disagreed on rules for listing waters impaired by atmospheric deposition and disagreed on strategies for developing TMDLs if waters impaired from airborne pollutants are listed.^{206.3} As a result, the Committee's draft final report only recommends that EPA conduct and encourage additional research about the causes of and solutions for water body impairment due to atmospheric deposition.^{206.4}

The Committee agreed that "meaningful and well-timed public participation [in section 303(d) listing and TMDL development activities] is a cornerstone of a successful TMDL process."²⁰⁷ The Committee draft

^{205.1} New statutory and/or regulatory TMDL-related requirements (including deadlines) should be subject to the CWA's enforcement and citizen suit provisions. See CWA §§ 309, 505, 33 U.S.C. §§ 1319, 1365.

²⁰⁶ TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at V.II.B.

^{206.1} *Id.*

^{206.2} *Id.*

^{206.3} *Id.*

^{206.4} *Id.*

²⁰⁷ TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at V.III.A.

recommends that states actively solicit public comment on all proposed section 303(d)(1) lists and TMDLs before the states send their lists and TMDLs to EPA for approval.²⁰⁸ The Committee believes the public should have an opportunity to influence agency decision. The Draft recommends that states consider listing waters nominated by the public and other agencies if supporting information is reliable and indicates an impairment.²⁰⁹

In addition, the FACA Committee plans to recommend that EPA encourage and support a substantial role for individuals involved with affected point sources, affected nonpoint sources, environmental groups, and other “stakeholders” in TMDL development, particularly in funding and data collection.²¹⁰ The Committee intends to recommend that states and/or EPA enter into written agreements with stakeholders that specify state and stakeholder roles for TMDL development.²¹¹ If enacted, the Committee’s public participation recommendations will greatly complicate the listing and TMDL development process by adding more inputs for decision makers to consider and possibly lengthening the identification and development process. Whether or not increased public and stakeholder participation will result in better TMDL decisions, it will make permit holders and affected nonpoint sources much more involved in the TMDL program.

²⁰⁸ *Id.*

²⁰⁹ *Id.*

²¹⁰ *Id.*

²¹¹ *Id.*

Another recommendation that may impact NPDES permit holders concerns enforcement of TMDLs. The Committee plans to recommend that EPA use its influence to ensure that states, federal land management agencies, and permitted users of federal lands fully implement and meet the provisions of approved TMDLs.²¹² To illustrate this recommendation, the Committee's draft final report says no federal permit or license should be issued unless the applicant's activity complies with applicable TMDLs.²¹³ In addition, existing permits and licenses must be reopened within a reasonable time period and revised to incorporate all applicable TMDLs.²¹⁴ Enacting this recommendation will force regulators and affected polluters to implement TMDL requirements since failure to comply can result in permit denials or revocations.

The TMDL FACA Committee did not address watershed-based effluent trading, habitat restoration, or other innovative techniques for attaining water quality standards through TMDLs.²¹⁵ The Committee identified effluent trading as an outstanding issue at its fifth meeting (January 21-23, 1998, in Salt Lake City Utah), but did not discuss the matter.²¹⁶ Since

²¹² *Id.* at XI.A.

²¹³ *Id.*

²¹⁴ *Id.*

²¹⁵ See TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95; Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *TMDL Federal Advisory Committee* (last modified Apr. 30, 1998) <<http://www.epa.gov/OWOW/tmdl/advisory.html>> (Internet source for minutes from and information about each of the Committee's six public meetings).

²¹⁶ Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *Draft Summary of Meeting Five*, Ranking of Outstanding Issues, Action on Outstanding Issues, Jan. 21, 1998 (last modified Apr. 6, 1998) <http://www.epa.gov/OWOW/tmdl/jan98mtg/mtg5_1.html>; Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *Draft Summary of Meeting Five*, Action on Outstanding Issues, Jan. 22, 1998 (last modified Apr. 6, 1998) <<http://www.epa.gov/>

meeting minutes from the sixth and final public meeting (May 4-6, 1998, in Atlanta, Georgia) have not been published yet, it is unclear whether or not the Committee ever discussed effluent trading.²¹⁷ Nonetheless, the Committee's draft final report makes no mention of effluent trading, habitat restoration, or other innovative approaches to meeting TMDL requirements.²¹⁸ The report mentions management practices and measures regarding nonpoint source dischargers but includes no comments about imposing management measures or similar controls on point sources.²¹⁹ A failure of the Committee to address innovative ways of developing and implementing TMDLs would be noteworthy. Perhaps a justification for such an omission would be the fact that the Committee was charged to recommend ways to improve the TMDL program and the Committee considered effluent trading and other innovative techniques to already be part of the TMDL program.²²⁰

VII. The Impact of TMDLs on Nonpoint Sources

A. Nonpoint Source Pollution

OWOW/tmdl/jan98mtg/mtg5_2.html>; Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *Draft Summary of Meeting Five, Action on Outstanding Issues*, Jan. 23, 1998 (last modified Apr. 7, 1998) <http://www.epa.gov/OWOW/tmdl/jan98mtg/mtg5_3.html>.

²¹⁷ See Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *TMDL Federal Advisory Committee* (last modified Apr. 30, 1998) <<http://www.epa.gov/OWOW/tmdl/advisory.html>>. Once finalized and publicly released, the meeting minutes will be available at this Internet site: <<http://www.epa.gov/OWOW/tmdl/advisory.html>>.

²¹⁸ See TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95.

²¹⁹ See *id.* The Committee addressed TMDL development for nonpoint sources in chapters VI.E and VI.F of its draft final report. See TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VI.E, VI.F.

²²⁰ EPA's policy on effluent trading is included in its May 1996 draft document about watershed-based trading. DRAFT FRAMEWORK FOR WATERSHED-BASED TRADING, *supra* note 29, at app. A-1-A-4. The policy became effective on February 9, 1996. Effluent Trading in Watersheds Policy Statement, 61 Fed. Reg. 4,994 (1996). EPA's December 1996 draft strategy document on TMDL implementation said EPA will continue to support ecological restoration activities. DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 3.8.3.

A nonpoint source is a diffuse source of water pollution that is not discharged into water bodies through a pipe, ditch, channel, or other discernible, confined, and discrete conveyance.²²¹ In other words, it is a source of pollution that does not meet the CWA's definition of point source.²²² Nonpoint source pollution is created by rainfall or snowmelt moving over and through soil and ground cover.²²³ As the runoff moves, it collects and carries natural and human-made pollutants.²²⁴ When the runoff reaches a surface water (e.g., river, lake, or wetland) or underground body of water (i.e., underground stream or pocket of water) it deposits its pollutants into the receiving water body.²²⁵

A number of human activities generate nonpoint source pollution, or polluted runoff, including: crop production, grazing, land development,

²²¹ See EPA, EPA 841-R-84-100, REPORT TO CONGRESS: NONPOINT SOURCE POLLUTION IN THE U.S. app. at C-4 (1984) [hereinafter REPORT TO CONGRESS: NONPOINT SOURCE POLLUTION]; EPA, EPA-506/9-90, MANAGING NONPOINT SOURCE POLLUTION 5 (1992) [hereinafter MANAGING NONPOINT SOURCE POLLUTION]; CWA § 502(14), 33 U.S.C. § 1362(14).

²²² MANAGING NONPOINT SOURCE POLLUTION, *supra* note 221, at 5. Agricultural storm water discharges and return flows from irrigated agriculture are carried by discernible, confined, and discrete conveyances. However, they are specifically excluded from section 502(14)'s definition of "point source" and are therefore nonpoint sources of pollution. See CWA § 502(14), 33 U.S.C. § 1362(14).

²²³ EPA, *What is Nonpoint Source (NPS) Pollution? Questions and Answers*, Question 1 (last modified Dec. 30, 1997) <<http://www.epa.gov/OWOW/NPS/whatudo.html>> (citing EPA, EPA 841-F-94-005, POLLUTED (1994)); REPORT TO CONGRESS: NONPOINT SOURCE POLLUTION, *supra* note 221, at 1-1 n..

²²⁴ *Id.* Natural pollutants include sediment (clay, silt, sand, gravel, and other particles of soil), salts, gypsum, metals in soil, nutrients (e.g., nitrogen and phosphorous), and tannic acids from decaying leaves. See REPORT TO CONGRESS: NONPOINT SOURCE POLLUTION, *supra* note 221, at 9, 12. Human-made pollutants include dioxins, polychlorinated biphenyls, and other toxic organic chemicals found in pesticides and herbicides. See *id.* at 10. They also include processed petroleum products. See *id.* at 11. Animal wastes are pollutants that contain nutrients, bacteria, and pathogens. See *id.* at 10. Human wastes from septic system leachate contains bacteria, viruses, and protozoa. See *id.*

²²⁵ See EPA, *What is Nonpoint Source (NPS) Pollution? Questions and Answers*, Question 1 (last modified Dec. 30, 1997) <<http://www.epa.gov/OWOW/NPS/whatudo.html>> (citing EPA, EPA 841-F-

construction, silviculture (timber harvesting) and hydrologic modification (channelization, dredging, dam construction, and other actions that alter the flow of water).²²⁶ Urban runoff from city streets, paved areas (e.g., parking lots), and suburban lawns is also nonpoint source pollution.²²⁷ In addition, runoff from abandoned mines, atmospheric deposition of contaminants in air pollution, land disposal (e.g., leakage from septic tanks and spreading of sewage sludge), agricultural storm water discharges, and return flows from irrigated agriculture are nonpoint sources of water pollution.²²⁸ Essentially, polluted runoff comes from “any surface from which rainwater or snowmelt can carry disturbed soil or other pollutants (such as pesticides, excess applications of fertilizer, or oil that has dripped onto pavement) into water bodies.”²²⁹ Since it can occur any time activities disturb the land or water, nonpoint source pollution is widespread.²³⁰

94-005, POLLUTED (1994)); REPORT TO CONGRESS: NONPOINT SOURCE POLLUTION, *supra* note 221, at 1-1 n..

²²⁶ See 1994 WATER QUALITY REPORT, *supra* note 169, at 11; EPA, EPA 840-F-93-001b, THE PROBLEM OF NONPOINT SOURCE POLLUTION 1-2 (1993) [hereinafter PROBLEM OF NONPOINT SOURCE POLLUTION]; EPA, *What is Nonpoint Source (NPS) Pollution? Questions and Answers*, Questions 1, 3-4 (last modified Dec. 30, 1997) <<http://www.epa.gov/OWOW/NPS/whatudo.html>> (citing EPA, EPA 841-F-94-005, POLLUTED (1994)); Drew Caputo, *A Job Half Finished: The Clean Water Act After 25 Years*, 27 ENVTL. L. REP. (Envtl. L. Inst.) 10,574, 10,575 (Nov. 1997).

²²⁷ EPA, EPA 840-F-93-001b, PROBLEM OF NONPOINT SOURCE POLLUTION, *supra* note 226, at 1; Caputo, *supra* note 226, at 10,575.

²²⁸ 1994 WATER QUALITY REPORT, *supra* note 169, at 11; EPA, EPA 840-F-93-001b, PROBLEM OF NONPOINT SOURCE POLLUTION, *supra* note 226, at 1. See JACKSON B. BATTLE & MAXINE I. LIPELES, ENVIRONMENTAL LAW VOLUME TWO: WATER POLLUTION 420-21 (2d ed. 1993); CWA § 502(14); 33 U.S.C. § 1362(14). Agricultural storm water discharges and return flows from irrigated agriculture are nonpoint sources because they are specifically excluded from the definition of “point source” contained in CWA section 502. See CWA § 502(14), 33 U.S.C. § 1362(14).

²²⁹ See Caputo, *supra* note 226, at 10, 575. Agricultural nonpoint source pollutants include sediments, animal wastes, pesticides, salts, and nutrients from the runoff of excess fertilizers. PROBLEM OF NONPOINT SOURCE POLLUTION, *supra* note 226, at 1. See 1994 WATER QUALITY REPORT,

B. Nonpoint Source Pollution Problem

Nonpoint source pollution is without question our nation's largest water quality problem. In its 1994 report on the health of our nation's waters, EPA told Congress that nonpoint source pollution was the leading source of impairment in the nation's rivers, lakes, and estuaries.²³¹ In fact, nonpoint source pollution accounted for four of the five leading sources of water quality impairment in surveyed rivers, four of the five leading sources of impairment in surveyed lakes, and three of the top five sources of impairment in surveyed estuaries.²³² Runoff from agriculture activities was the leading source of water

supra note 169, at 9. Construction of roadways and land development projects produce sediments and toxic materials. PROBLEM OF NONPOINT SOURCE POLLUTION, *supra* note 226, at 2. Logging roads and deforested lands also produce sediments. *Id.* Hydrologic modification affects runoff, increases sediment deposits, and changes water quality. *Id.* Pollutants from abandoned mining operations include sediment and metals. 1994 WATER QUALITY REPORT, *supra* note 169, at 9, 10. Pollutants from urban runoff include sediments, road salts, oil and grease, nutrients, and toxics. PROBLEM OF NONPOINT SOURCE POLLUTION, *supra* note 226, at 1. EPA considers crop production, rangeland, pastures, and animal holding areas (e.g., feedlots) to be "agricultural" nonpoint sources of water pollution. See 1994 WATER QUALITY REPORT, *supra* note 169, at 11. Crop production involves plowing, planting, pesticide spraying, irrigation, fertilizing, and harvesting. See EPA, EPA 841-F-96-004F, *Nonpoint Source Pointers (Fact Sheets), Pointer No. 6, Managing Nonpoint Source Pollution from Agriculture 1* (last modified Jan. 21, 1997) <<http://www.epa.gov/OWOW/NPS/facts/point6.html>>.

²³⁰ See EPA, EPA 841-F-96-004A, *Nonpoint Source Pointers (Fact Sheets), Pointer No. 1, Nonpoint Source Pollution: The Nation's Largest Water Quality Problem 1* (last modified Jan. 21, 1997) <<http://www.epa.gov/OWOW/facts/point1.html>>. EPA maintains a series of eleven fact sheets on the Internet that discuss different types of nonpoint source pollution and various ways of controlling nonpoint source pollution. See EPA, *Nonpoint Source Pointers (Fact Sheets)* (last modified Jan. 21, 1997) <<http://www.epa.gov/OWOW/NPS/facts/index.html>>.

²³¹ See 1994 WATER QUALITY REPORT, *supra* note 169, at 12, 14-15, 18-19, 25.

²³² *Id.* at 12, 15, 18, 25. Seventeen percent (615,806 miles) of the nation's 3.5 million miles of rivers and streams were surveyed. *Id.* at 13, 15. Thirty-six percent (224,236 miles) of the surveyed river miles failed to fully support the states' designated uses for those water bodies. *Id.* at 13-15. The first, third, fourth, and fifth leading sources of water quality impairment in the surveyed rivers and streams were agriculture (first), hydrologic/habitat modification (third), urban runoff/storm sewers (fourth), and resource extraction (fifth). *Id.* at 12, 15. The sixth leading impairment source was forestry activities. *Id.* at 14. Forty-two percent (17.1 million acres) of the nation's 40.8 million acres of lakes, ponds, and reservoirs were surveyed. *Id.* at 16, 18. Thirty-seven percent (6.7 million acres) of the surveyed lakes and ponds failed to fully meet their designated uses. *Id.* at 16, 18. The first, third, fourth and fifth leading sources of impairment in surveyed lake waters were agriculture (first), urban runoff/storm sewers (third), unspecified nonpoint sources (fourth), and hydrologic/habitat modification

quality impairment in surveyed rivers and lakes, the third leading source of impairment to surveyed estuaries, and a major contributor to wetlands degradation and ground water contamination.²³³ In addition, runoff from urban areas and storm sewers was the leading source of water quality impairments to surveyed estuaries.²³⁴ The findings stated in the 1994 report were consistent with the findings reported in EPA's 1992 report on the quality of our nation's waters.²³⁵ They were also consistent with findings EPA made recently in its 1996 report.²³⁶ For the 1996 reporting period, 36 percent of the

(fifth). *Id.* at 12, 18. Seventy-eight percent (26,847 square miles) of the nation's 34,388 square miles of estuaries (defined as "areas partially surrounded by land where the land meets the sea") were surveyed. *Id.* at 23, 25. Thirty-seven percent (9,700 square miles) of the surveyed estuaries were impaired. *Id.* The first, third, and fifth leading sources of estuary impairment were urban runoff/storm sewers (first), agriculture (third), and petroleum activities (fifth). *Id.* at 12, 15. Construction (land development and road construction) was the sixth and land disposal of wastes (leachate from septic tanks, landfills, and hazardous waste sites) was the seventh leading source of estuary impairment. *See id.* at 11, 15. Rivers/streams, lakes/ponds/reservoirs, and estuaries were the three largest categories of water bodies surveyed and the only categories this paper will provide detailed information about. *See id.* at 6. The other categories of waters surveyed were Great Lakes shoreline and ocean shoreline waters, which together equal 63,980 miles (58,421 miles of ocean and 5,224 miles of Great Lakes shoreline) of water. *Id.* at 6. EPA's report also addressed wetland impairment (twelve states provided information about wetlands) and ground water. *See id.* at 27-31.

²³³ EPA, EPA 841-F-96-004F, *Nonpoint Source Pointers, Pointer No. 6, Managing Nonpoint Source Pollution from Agriculture* 1 (last modified Jan. 21, 1997) <<http://www.epa.gov/OWOW/facts/point6.html>>; EPA, EPA 841-F-96-004A, *Nonpoint Source Pointers, Pointer No. 1, Nonpoint Source Pollution: The Nation's Largest Water Quality Problem* 1 (last modified Jan. 21, 1997) <<http://www.epa.gov/OWOW/facts/point1.html>>; 1994 WATER QUALITY REPORT, *supra* note 169, at 12, 14-15, 18-19, 25, 28-29, 30. Runoff from agriculture activities affected 60 percent of the impaired river miles, 50 percent of the impaired lake acres, and 34 percent of the impaired estuarine waters. 1994 WATER QUALITY REPORT, *supra* note 169, at 14, 19, 25.

²³⁴ EPA, EPA 841-F-96-004A, *Nonpoint Source Pointers, Pointer No. 1, nonpoint Source Pollution: The Nation's Largest Water Quality Problem* 1 (last modified Jan. 21, 1997) <<http://www.epa.gov/OWOW/facts/point1.html>>; 1994 WATER QUALITY REPORT, *supra* note 169, at 12, 25. Pollutants in urban runoff and effluents from storm water sewers affected 46 percent of the impaired estuarine waters. *Id.* at 25.

²³⁵ 1994 WATER QUALITY FACT SHEET, *supra* note 167, at 1.

²³⁶ *See* 1996 NATIONAL WATER QUALITY REPORT, *supra* note 169.1, at 13, 15-16, 19, 25-26, 29-30; CLEAN WATER ACTION PLAN, *supra* note 159, 7. Atmospheric deposition was identified as the third leading source of impairment in lake waters and pollution from upstream sources was the fourth leading source of impairment in estuarine waters for the 1996 reporting period. 1996 NATIONAL WATER QUALITY REPORT, *supra* note 169.1, at 13, 19-20, 25-26. Runoff from agricultural activities was the fifth leading source of impairment in estuaries. *Id.* at 13, 25-26. Neither

river and stream miles surveyed were impaired and an additional 8 percent were threatened (water meets designated use criteria now but may not meet designated uses during 1998 reporting period).²³⁷ Thirty-nine percent of surveyed lakes were partially or fully impaired and an additional ten percent were threatened.²³⁸ Thirty-eight percent of surveyed estuarine waters were impaired and an additional four percent were at risk of becoming impaired by the next biennial report.²³⁹ In addition, polluted runoff was the leading source of water pollution, with agriculture runoff affecting 70 percent of impaired river/stream miles and 49 percent of impaired lake/pond/reservoir acres.²⁴⁰ In its February 1998 *Clean Water Action Plan*, EPA referred to polluted runoff as “the most important source of water pollution.”²⁴¹ Nearly five years earlier, in July 1993, EPA made a similar statement when it referred to nonpoint source pollution as “the leading cause of our water quality problems [nationwide].”²⁴²

atmospheric deposition nor upstream source pollution were considered as sources of impairment in the 1994 report. See 1994 NATIONAL WATER QUALITY REPORT, *supra* note 169, at 12, 18-19, 25.

²³⁷ 1996 NATIONAL WATER QUALITY REPORT, *supra* note 169.1, at 6, 14; CLEAN WATER ACTION PLAN, *supra* note 159, at 7.

²³⁸ 1996 NATIONAL WATER QUALITY REPORT, *supra* note 169.1, at 17; CLEAN WATER ACTION PLAN, *supra* note 159, at 7.

²³⁹ 1996 NATIONAL WATER QUALITY REPORT, *supra* note 169.1, at 24; CLEAN WATER ACTION PLAN, *supra* note 159, at 7.

²⁴⁰ See CLEAN WATER ACTION PLAN, *supra* note 159, at 9; 1996 NATIONAL WATER QUALITY REPORT, *supra* note 169.1, at 13, 15-16, 19-20.

²⁴¹ CLEAN WATER ACTION PLAN, *supra* note 159, at 9. The *Clean Water Action Plan* is a joint EPA-United States Department of Agriculture response to an October 18, 1997 tasking from the Vice President to “work with other federal agencies and the public to develop a Clean Water Action Plan that charts a course toward fulfilling the original goal of the Clean Water Act -- ‘fishable and swimmable’ waters for all Americans.” *Id.* at Letter to the Vice President (inside cover of document). The *Clean Water Action Plan* is available on the Internet at <http://www.epa.gov/cleanwater/action/toc.html>.

²⁴² PROBLEM OF NONPOINT SOURCE POLLUTION, *supra* note 226, at 1.

C. Regulation of Nonpoint Sources under CWA Sections 208 and 319

Nonpoint source pollution has been and continues to be the nation's leading water quality problem.²⁴³ One reason for this pervasive problem is the very nature of polluted runoff itself. Since its sources include any surface from which rainwater or snowmelt can carry disturbed soil or other pollutants that gather on that surface, nonpoint source pollution is widespread and difficult (in many areas) to trace to one particular activity or condition.²⁴⁴ The difficulty in linking polluted runoff to a particular activity or group of activities makes it harder for regulators to control nonpoint source pollution.²⁴⁵

Regardless, nonpoint source pollution is not subject to much regulation under the CWA. For instance, the general discharge prohibition of CWA section 301 does not apply to nonpoint sources.²⁴⁶ In addition, the effluent limitations, technology standards, and pretreatment requirements of sections 302, 306, and 307 do not apply to nonpoint sources.²⁴⁷ Furthermore, the

²⁴² PROBLEM OF NONPOINT SOURCE POLLUTION, *supra* note 226, at 1.

²⁴³ Reflecting on the efforts to attain the CWA's primary goals over the past 25 years, one author said "America has made essentially no progress in addressing polluted runoff over the past quarter-century, and in fact there is compelling data indicating that non-point pollution has gotten worse rather than better in the last 25 years." Caputo, *supra* note 226, at 10,577. Mr. Caputo is an attorney with the Natural Resources Defense Council in Washington, District of Columbia. *Id.* at 10,574 n.

²⁴⁴ Caputo, *supra* note 226, at 10,575, 10,582-583. The pollutants in the runoff may be hard to trace because the runoff gathers pollutants from a number of sources, both natural and manmade, before depositing them in rivers, lakes, or other water bodies subject to regulation under the CWA.

²⁴⁵ It is certainly easier for regulators to monitor and control point sources than nonpoint sources since they know what, where, and how much point sources are discharging and can impose control measures through the NPDES permits. As will be discussed momentarily, activities that generate nonpoint source pollution generally are not subject to the CWA's monitoring and permit requirements.

²⁴⁶ See CWA § 301, 33 U.S.C. § 1311.

²⁴⁷ See CWA §§ 302, 306, 307, 33 U.S.C. §§ 1312, 1316, 1317.

permit provisions of sections 402 and 404 do not apply to nonpoint sources.²⁴⁸

Nonpoint source pollution is addressed in the CWA (namely, in sections 208, 303(d), and 319), but it is not regulated near to the extent that point sources are controlled under the Act.²⁴⁹

Section 208 requires state and local agencies to develop and implement areawide waste treatment management plans to further the CWA's goal of attaining fishable and swimmable waters.²⁵⁰ Those plans must include a process to identify and set forth measures to control to the extent feasible nonpoint source pollution from agriculture, silviculture, mining, construction, and a few other activities or conditions.²⁵¹ The plans must be prepared as part of a continuing areawide waste treatment management process section 208 requires each state and local agency (if delegated responsibility and authority from the state) to initiate within one year after the state identifies areas within its borders that have substantial water quality control problems.²⁵²

Section 208 requires states to identify their water quality control problem areas within 60 days after EPA publishes guidelines for identifying

²⁴⁸ See CWA §§ 402, 405, 33 U.S.C. §§ 1342, 1344. Also, generators of polluted runoff are not subject to the permit requirements for ocean discharges. See CWA § 403, 33 U.S.C. § 1343.

²⁴⁹ See CWA §§ 208, 303(d)-(e), 319, 33 U.S.C. §§ 1288, 1313(d)-(e), 1329; BATTLE & LIPELES, *supra* note 228, at 422, 427-29; Caputo, *supra* note 226, at 10,579.

²⁵⁰ See CWA § 208(a)(2), 33 U.S.C. § 1388(a)(2); Natural Resources Defense Council v. Costle, 564 F.2d 573, 575 (D.C. Cir. 1977). Natural Resources Defense Council v. Costle, 564 F.2d 573, 575 (D.C. Cir. 1977) involved a challenge to the meaning of section 208 and EPA's duty to issue regulations under section 208.

²⁵¹ See CWA § 208(b)(2), 33 U.S.C. § 1288(b)(2); Natural Resources Defense Council v. Costle, 564 F.2d at 575-76.

²⁵² CWA § 208(b)(1), 33 U.S.C. § 1288(b)(1).

water quality control problem areas.²⁵³ Initial state and local areawide management plans must be submitted to EPA for approval within two years after initiation of the continuing planning process.²⁵⁴ Each year after initial approval, states must certify that their management plans are consistent with applicable basin plans and submit the management plans to EPA for approval.²⁵⁵ Section 208's planning requirements overlap with the continuing planning process requirements of section 303(e), which requires water quality management plans to include "all elements of any applicable area-wide waste management plans under [section 208]."²⁵⁶

Section 208 prohibits the issuance of a NPDES permit to any point source which is in conflict with an approved areawide waste treatment management plan.²⁵⁷ It also provides for federal funding of up to 75 percent of the cost to develop and implement a qualifying waste treatment management plan.²⁵⁸ Without being reimbursed, EPA may provide state and local planning agencies technical assistance in the development of their waste treatment management plans.²⁵⁹

²⁵³ CWA § 208(a)(2), 33 U.S.C. § 1288(a)(2). EPA's section 208 guidelines were challenged in *Natural Resource Defense Council v. Costle*. *Natural Resource Defense Council v. Costle*, 564 F.2d at 575-76.

²⁵⁴ See CWA § 208(b)(1)(A), 33 U.S.C. § 1288(b)(1)(A).

²⁵⁵ See CWA § 208(b)(3), 33 U.S.C. § 1288(b)(3).

²⁵⁶ CWA § 303(e)(3)(B), 33 U.S.C. § 1313(e)(3)(B). See *supra* note 76 and accompanying text for a discussion of section 303(e).

²⁵⁷ CWA § 208(e), 33 U.S.C. § 1288(e).

²⁵⁸ CWA § 208(f), 33 U.S.C. § 1288(f).

²⁵⁹ CWA § 208(g), 33 U.S.C. § 1288(g). The Army Corps of Engineers may also provide technical assistance. CWA § 208(h), 33 U.S.C. § 1288(h).

Prior to 1987, the section 208 program failed to effectively control polluted runoff.²⁶⁰ Few states took the program seriously.²⁶¹ Few of the more than 200 EPA-approved management plans that included provisions about polluted runoff controls contained enforceable regulatory provisions.²⁶² Even less of the plans that contained enforceable provisions regarding nonpoint source controls were actually enforced.²⁶³

In 1987, section 319 was added to the CWA and effectively subsumed the nonpoint source components of section 208.²⁶⁴ Section 319 requires each state to prepare and submit for approval by EPA a report that identifies those navigable waters within the state's boundaries that cannot reasonably be expected to attain or maintain applicable water quality standards or CWA goals without additional action to control polluted runoff.²⁶⁵ Such reports must identify the specific types of nonpoint sources that significantly contribute to the inability of waters in the state to attain or maintain applicable water quality standards.²⁶⁶ They must also identify the process used in the

²⁶⁰ BATTLE & LIPELES, *supra* note 228, at 428; Robert L. Glicksman, *Pollution on the Federal Lands II: Water Pollution Law*, 12 UCLA J. ENVTL. L. & POL'Y 61, 86-87 (1993).

²⁶¹ See Glicksman, *supra* note 261, at 86-87. Glicksman, a Professor of Law at the University of Kansas, speculated that states did not take section 208 seriously because the CWA did not impose any significant penalties for noncompliance. *Id.* at 1 n. FN4, 86. Professor Glicksman also said few states were willing to face the political opposition to nonpoint source regulation from the powerful agriculture, mining, and construction industries. *Id.* at 86-87.

²⁶² BATTLE & LIPELES, *supra* note 228, at 428.

²⁶³ *Id.* Most of the plans called for "studies" to determine what, if any, regulations were needed. *Id.* The political opposition that hindered development of the plans in the first place continued to discourage states from deciding that agriculture, construction, and other industries linked to nonpoint source pollution should be subjected to government control of their management practices. See *id.*

²⁶⁴ BATTLE & LIPELES, *supra* note 228, at 429. See CWA § 319, 33 U.S.C. § 1329 (Nonpoint Source Management Programs).

²⁶⁵ CWA § 319(a)(1)(A), 33 U.S.C. § 1329(a)(1)(A).

²⁶⁶ CWA § 319(a)(1)(B), 33 U.S.C. § 1329(a)(1)(B).

state for identifying the best management practices and measures to control those nonpoint source types and existing programs used in the state to control polluted runoff.²⁶⁷ State nonpoint source reports must be submitted for EPA approval within the 18-month period beginning on February 4, 1987.²⁶⁸ A state's failure to submit the required report triggers an obligation by EPA to prepare the report for the state.²⁶⁹ Section 319 specifies no criteria for approval or disapproval of state polluted runoff reports.²⁷⁰

In addition to a polluted runoff assessment report, section 319 requires each state to develop a program for managing nonpoint source pollution that affects waters within the state's borders.²⁷¹ Each state has to submit its proposed nonpoint source pollution management program to EPA for approval within the 18-month period beginning on February 4, 1987.²⁷² EPA has 180 days to approve or disapprove a submitted report or management program proposal or the submittal is deemed approved.²⁷³ If EPA disapproves a proposed program, the state has three months to submit a revised proposal that includes the revisions or modifications EPA identifies as being necessary before for approval of the proposal.²⁷⁴

Section 319 contains no requirement that EPA develop a management program if either a state fails to submit any proposal at all or a state fails to

²⁶⁷ CWA §§ 319(a)(1)(C)-(D), 33 U.S.C. §§ 1329(a)(1)(C)-(D).

²⁶⁸ CWA § 319(c)(2), 33 U.S.C. § 1329(c)(2).

²⁶⁹ CWA § 319(d)(3), 33 U.S.C. § 1329(d)(3).

²⁷⁰ See CWA § 319, 33 U.S.C. § 1329.

²⁷¹ See CWA § 319(b)(1), 33 U.S.C. § 1329(b)(1).

²⁷² CWA § 319(c)(2), 33 U.S.C. § 1329(c)(2).

²⁷³ CWA § 319(d)(1), 33 U.S.C. § 1329(d)(1).

submit an approved program proposal.²⁷⁵ However, the section indicates that to be approved, a nonpoint source management program must, among other things, specify the best management practices and measures that will be used to reduce pollutant loadings from the nonpoint sources identified in the state's section 319 polluted runoff assessment report.²⁷⁶ It must also specify programs (including regulatory and/or nonregulatory programs for enforcement, technical assistance, financial assistance, training, education, technology transfer, and demonstration projects) for implementing the best management practices identified in the assessment report and include a schedule (with annual milestones) for implementing the proposed management program.²⁷⁷

Section 319 includes provisions about technical assistance and federal grants to assist states in implementing approved management programs.²⁷⁸ States that receive grants under section 319 must annually report to EPA their progress in meeting their program implementation schedule.²⁷⁹ As of November 1994, all states, six tribal governments, and six territories had completed assessments and management programs.²⁸⁰ However, state

²⁷⁴ CWA § 319(d)(2), 33 U.S.C. § 1329(d)(2).

²⁷⁵ See CWA § 319, 33 U.S.C. § 1329.

²⁷⁶ See CWA § 319(b)(2), 33 U.S.C. § 1329(b)(2).

²⁷⁷ CWA §§ 319(b)(2)(B)-(C), 33 U.S.C. §§ 1329(b)(2)(B)-(C).

²⁷⁸ See CWA §§ 319(e), (f), (h)-(i), 33 U.S.C. §§ 1329(e), (f), (h)-(i).

²⁷⁹ CWA § 319(h)

²⁸⁰ EPA, *Questions and Answers on the Relationship Between the Section 319 Nonpoint Source Program and the Section 314 Clean Lakes Program*, Question 1 (last modified Apr. 1, 1997) <<http://www.epa.gov/OWOW/NPS/Section319/q&a.html>>. By 1989, 18 months after the statutory deadline, 56 states and territories had submitted their section 319 assessment reports and program proposals to EPA. BATTLE & LIPELES, *supra* note 228, at 439. Within a year later, EPA had acted on, and approved, most of the state nonpoint source management programs. *Id.*

compliance with section 319's submittal requirements has not resulted in significant progress in controlling polluted runoff.²⁸¹ One reason for the lack of progress is that section 319 contains no enforceable requirements: there is no penalty if a state fails to perform a required duty under section 319.²⁸² Section 309, the CWA's enforcement provisions, does not apply to section 319 programs, which means EPA has no authority to compel states to adopt specific nonpoint source control measures or to enforce any measures the states adopt.²⁸³ In addition, Congress has never offered sufficient incentives to prompt states to take significant action voluntarily under section 319.²⁸⁴

D. Regulation of Nonpoint Sources under CWA Section 303(d)

Section 303(d) requires each state to identify water quality-impaired segments without regard to the source or sources (i.e., point source(s), nonpoint source(s), and/or natural background) of the impairment.²⁸⁵ Similarly, section 303(d) requires states to develop TMDLs for water quality-limited waters that are impaired solely by point source discharges, polluted runoff, or a combination of point source effluent and polluted runoff.²⁸⁶ In

²⁸¹ See Caputo, *supra* note 226, at 10,579; BATTLE & LIPELES, *supra* note 228, at 439.

²⁸² See CWA § 319, 33 U.S.C. § 319; Caputo, *supra* note 226, at 10,579.

²⁸³ BATTLE & LIPELES, *supra* note 228, at 439.

²⁸⁴ Caputo, *supra* note 226, at 10,579. Mr. Caputo said a GAO review of the section 319 program reported that state officials "identified the lack of resources as a key barrier to controlling nonpoint source pollution. Although some states have or will allocate millions of dollars to deal with the problem, they maintain that it would require billions to correct." *Id.* at 10,579 n.68 (citing WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 28-29).

²⁸⁵ See CWA § 303(d), 33 U.S.C. § 1313(d); 40 C.F.R. §§ 130.7(b)(1)-(2) (1997).

²⁸⁶ See *id.*

short, section 303 does not distinguish between pollution from point sources and pollution from nonpoint sources.²⁸⁷

EPA distinguishes point sources from nonpoint sources in its TMDL regulations, but requires loading limitations for both sources of water quality impairment.²⁸⁸ Loading limitations for point sources are called “wasteload allocations” and loading limits for nonpoint sources and natural background sources are called “load allocations.”²⁸⁹ A TMDL, in fact, is the sum of the individual wasteload allocations for point sources and load allocations for nonpoint sources and natural background.²⁹⁰ TMDL load allocations are “best estimates” of the pollutants introduced to a receiving water from nonpoint sources and/or natural background sources.²⁹¹ These estimates may range from reasonably accurate assessments to gross allotments, depending on the availability of data and appropriate techniques for measuring the loading.²⁹²

The TMDL regulations do not specify how states (or EPA, if a state fails to act) are to develop and implement loading limitations for point sources and nonpoint sources.²⁹³ However, the regulations contemplate implementing load allocations through the traditional means of controlling nonpoint source

²⁸⁷ *See id.*

²⁸⁸ *See* 40 C.F.R. §§ 130.2(g)-(i), 130.7 (1997). This paper does not address the legal challenges to EPA’s inclusion of nonpoint sources in its TMDL regulations. It also does not address legal challenges to attempts to regulate nonpoint source pollution through development and implementation of load allocations.

²⁸⁹ *See* 40 C.F.R. §§ 130.2(g)-(h) (1997).

²⁹⁰ 40 C.F.R. § 130.2(i) (1997).

²⁹¹ 40 C.F.R. § 130.2(g) (1997).

²⁹² *Id.* The diffuse nature of nonpoint source pollution makes it difficult to accurately determine the loading from individual nonpoint sources as well as from natural background sources. As a result, the TMDL regulations say load allocations should distinguish between nonpoint source loads and natural background source loads wherever possible. *See id.*

pollution: best management practices (BMPs).²⁹⁴ BMPs for controlling nonpoint source pollution are the “[m]ethods, measures or practices selected by an agency to meet its nonpoint source control needs.”²⁹⁵ BMPs may be applied before, during, and after pollution-generating activities as a means of controlling the loading of pollutants into receiving waters.²⁹⁶ Such control measures include, but are not limited to, structural and nonstructural controls, operation methods, and maintenance procedures.²⁹⁷ Some examples of BMPs are: animal waste management, crop rotation, and fertilizer management to

²⁹³ See 40 C.F.R. §§ 130.2(g)-(h), 130.2(m), 130.7 (1997).

²⁹⁴ See 40 C.F.R. § 130.2(m) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 24-25. The TMDL regulations define “BMPs” as “[m]ethods, measures or practices selected by an agency to meet its nonpoint source control needs.” 40 C.F.R. § 130.2(m) (1997). The regulations also say BMPs can be applied before, during, and after pollution-producing activities to “reduce or eliminate the introduction of pollutants into receiving waters.” *Id.* In its 1984 Report to Congress on nonpoint source pollution, EPA defined “BMPs” as “[m]ethods, measures, or practices to prevent or reduce water pollution, including, but not limited to, structural and nonstructural controls and operation and maintenance procedures.” REPORT TO CONGRESS: NONPOINT SOURCE POLLUTION, *supra* note 221, app. at C-1. The 1984 report also said BMPs may be applied before, during, or after “pollution-producing activities to reduce or eliminate the introduction of pollutants into water bodies.” *Id.* The BMPs referred to in the 1984 report are the same BMPs discussed in the CWA’s provisions regarding control of nonpoint source pollution control, section 208 and section 319. See CWA §§ 208(b), 319(a)(1), (b)(2), 33 U.S.C. §§ 1288(b), 1329(a)(1), (b)(2); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 40-41 (BMPs under section 319 program); REPORT TO CONGRESS: NONPOINT SOURCE POLLUTION, *supra* note 221, at 2-3, 2-4, 2-5, 3-1, 3-16 (BMPs under section 208 program).

²⁹⁵ 40 C.F.R. § 130.2(m) (1997).

²⁹⁶ See 40 C.F.R. § 130.2(m) (1997).

²⁹⁷ 40 C.F.R. § 130.2(m) (1997); GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 24. Query whether BMPs may include a permit requirement. EPA’s 1991 guidance document on the TMDL program suggests the answer is no. See *id.* at 24-25. However, states can use their police power to regulate facilities and activities that generate polluted runoff. Interestingly, state management programs under CWA section 319 must include regulatory enforcement programs to implement BMPs. CWA § 319(b)(2)(B), 33 U.S.C. § 1329(b)(2)(B). A permit program may be an effective way to control nonpoint source pollution. The State of Nevada thinks so and required one county, the Nevada Department of Transportation, and two cities to obtain permits to discharge to the water quality-impaired Truckee River from storm water outfalls. See EPA, EPA 841-F-94-006, TMDL CASE STUDY: TRUCKEE RIVER, NEVADA Table 2 (1994). See James M. McElfish, Jr., *State Enforcement Authorities for Polluted Runoff*, 28 ENVTL. L. REP. (Envtl. L. Inst.) 10,181 (Apr. 1998) and ENVIRONMENTAL LAW INSTITUTE, ENFORCEABLE

reduce pollutant loadings from agriculture runoff; nonvegetative soil stabilization, runoff detention/retention, and surface roughening to minimize nonpoint source pollution from construction activities; flood storage and street cleaning to reduce pollution from urban runoff; log removal techniques and ground cover maintenance to control polluted runoff from silviculture; and underdrains and water diversion for mining operations.²⁹⁸

STATE MECHANISMS FOR THE CONTROL OF NONPOINT SOURCE WATER POLLUTION (1997) for discussions of state enforcement authorities regarding nonpoint source pollution.

²⁹⁸ GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS, *supra* note 76, at 24. The 1991 guidance document listed several dozen BMPs for controlling polluted runoff. *Id.* EPA's series of nonpoint source pollution fact sheets also identify many BMPs for controlling nonpoint source pollution. See EPA, *Nonpoint Source Pointers (Fact Sheets)* (last modified Jan. 21, 1997) <<http://www.epa.gov/OWOW/NPS/facts/index.html>>. In October 1997, EPA published a document that describes state achievements in controlling nonpoint source pollution since 1994. EPA, EPA 841-R-97-001, SECTION 319 SUCCESS STORIES: VOLUME II 1 (1997). An earlier document (published in 1994) highlighted state's achievements in their initial efforts to implement nonpoint source programs under section 319. *Id.* Between August 1992 and August 1994, EPA published 13 TMDL "case studies" that described point source and nonpoint source controls developed and/or implemented around the country to comply with section 303(d)'s TMDL requirements. EPA, EPA 841-F-93-001, TMDL CASE STUDY: DENVER METRO, THE SOUTH PLATTE RIVER SEGMENT (1992); EPA, EPA 841-F-93-002, TMDL CASE STUDY: SOUTH FORK OF THE SALMON RIVER (1992); EPA, EPA 841-F-93-003, TMDL CASE STUDY: WEST FORK OF CLEAR CREEK (1992); EPA, EPA 841-F-93-004, TMDL CASE STUDY: NOMINI CREEK WATERSHED (1992); EPA, EPA 841-F-93-005, TMDL CASE STUDY: ALBEMARLE/PAMLICO ESTUARY (1992); EPA, TMDL CASE STUDY: THE LOWER MINNESOTA RIVER (1992); EPA, EPA 841-F-92-012, TMDL CASE STUDY: SYCAMORE CREEK, MICHIGAN (1992); EPA, EPA 841-F-93-006, TMDL CASE STUDY: BOULDER CREEK, COLORADO (1993); EPA, EPA 841-F-93-007, TMDL CASE STUDY: APPOQUINIMINK RIVER, DELAWARE (1993); EPA, *TMDL Case Study: Tar-Pamlico Basin, North Carolina* (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/cs10/cs10.html>>; EPA, EPA 841-F-94-001, TMDL CASE STUDY: LAKE CHELAN, WASHINGTON (1994); EPA, EPA 841-F-94-004, TMDL CASE STUDY: MODELING THE APPOQUINIMINK RIVER (1994); EPA, EPA 841-F-94-006, TMDL CASE STUDY: TRUCKEE RIVER, NEVADA (1994). All 13 case studies are available on the Internet. See EPA, *TMDL Case Studies # 1-13* (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/case.html>>. The nonpoint source controls discussed in the case studies involved BMPs to reduce pollutant loadings into impaired water segments. See EPA, EPA 841-F-93-002, TMDL CASE STUDY: SOUTH FORK OF THE SALMON RIVER 5-6 (road closure, road reconstruction, and road stabilization to reduce loading of sediment) (1992); EPA, EPA 841-F-93-003, TMDL CASE STUDY: WEST FORK OF CLEAR CREEK 2, 6-7 (1992) (plugging an inactive mine portal to prevent loading from mine to impaired creek, installation of groundwater drains in mine tailing piles, and construction of channels to divert runoff around the tailing piles); EPA, EPA 841-F-93-004, TMDL CASE STUDY, NOMINI CREEK WATERSHED 2, 5 (1992) (no-till farming, grassed waterways, and removal of land from production to reduce loading of nutrients from agricultural activities); EPA, EPA 841-F-92-011; TMDL CASE STUDY: THE

E. Current and Future Trends

1. Litigation

As previously discussed, EPA is currently subject to several court orders and consent decrees to develop TMDLs if states fail to establish them within prescribed time periods.²⁹⁹ In addition, litigation is pending in a number of states that seeks to compel EPA to identify water quality-impaired segments and/or establish TMDLs for impaired waters in those states.³⁰⁰ TMDLs established as a result of the TMDL lawsuits may include load allocations and those allocations are likely to be implemented through BMPs.³⁰¹

LOWER MINNESOTA RIVER 2, 7 (1992) (manure management, riparian filter strips, integrated pest management, and conservation tillage to reduce polluted runoff from agricultural activities); EPA, EPA 841-F-93-006, TMDL CASE STUDY: BOULDER CREEK, COLORADO 3-6 (1993) (erecting fencing to prevent cattle grazing in riparian habitat, stabilizing streambanks via log revetments, and planting willow and cottonwood trees in riparian zone to restore instream habitats); EPA, EPA 841-F-93-007, TMDL CASE STUDY: APPOQUINIMINK RIVER, DELAWARE 6 (1993) (permanent vegetative cover, animal waste control systems, fertilizer management, erosion control structures); EPA, *TMDL Case Study: Tar-Pamlico Basin, North Carolina* 4-7 (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/cs10/cs10.html>> (nutrient trading scheme where NPDES permit holders help fund voluntary best management practices to reduce loading from agricultural activities); EPA, EPA 841-F-94-006, TMDL CASE STUDY: TRUCKEE RIVER, NEVADA 6 (1994) (municipalities issued permits to discharge stormwater outfalls, studies funded to consider ways to control nonpoint source pollution from urban runoff and animals grazing in the riparian corridor). The 1992-1994 case studies are currently the only publicly available information on the development and implementation of TMDL load allocations. See EPA, *What's New on TMDLs?* (last modified May 19, 1998) <<http://www.epa.gov/OWOW/tmdl/new.html>>; EPA, *Sitemap for Total Maximum Daily Load (TMDL) Program* (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/sitemap.html>>. However, in its 1996 draft implementation strategy for the TMDL program, EPA said it will continue to develop TMDL case studies. DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 3.3.2.

²⁹⁹ See *supra* notes 178-79 and accompanying text.

³⁰⁰ See *supra* note 180 and accompanying text.

³⁰¹ In its 1997 document regarding the section 319 program, EPA reported that most states "place a priority on promoting nonpoint source controls through voluntary approaches such as financial assistance, technical assistance, and training." See EPA, EPA 841-R-97-001, SECTION 319 SUCCESS STORIES: VOLUME II 5 (1997). Persistent failure by federal and state agencies to aggressively control nonpoint source pollution through regulation prompted resulted in nonpoint source pollution becoming the dominant water quality problem in the United States. See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,399. In 1997, Caputo said that after 25 years of CWA legislation and regulation, America is only halfway to its goal of clean water because America has made "essentially no progress in addressing polluted runoff." Caputo, *supra* note 226, at 10,577-

2. EPA Policy and Guidance

EPA's 1996 draft TMDL program implementation strategy document discussed nonpoint source pollution in a few places.³⁰² Regarding TMDL development, the document said EPA will continue to address problems associated with predicting the water quality impacts of polluted runoff during wet weather events.³⁰³ To assist states with implementation of TMDLs that allocate pollutant loads to nonpoint sources, EPA will establish "additional, national criteria" for determining if there is reasonable assurance that load allocations for nonpoint sources will "actually be implemented in a reasonable period of time."³⁰⁴ EPA will also provide information about programs and resources that can support TMDL implementation.³⁰⁵ In addition, EPA will consider changing its regulations to require states to submit implementation plans and schedules to EPA along with their

578, 10,584. Mr. Caputo said the "bulk" of the water quality challenge facing America today is successfully controlling nonpoint source pollution. *See id.* at 10,584. In its draft final report, the TMDL FACA Committee acknowledges that, historically, nonpoint sources have not been regulated as "comprehensively" as point sources and "the water quality programs for point and nonpoint sources differ in a variety of ways." DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VI.F.

³⁰² *See* DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 3.3.2, 3.4, 3.6, 3.8, app. D.

³⁰³ *See id.* at 3.3.2.

³⁰⁴ *Id.* at 3.4. The criteria will address state and local regulatory programs, state and local voluntary programs, and "federal environmental activities apart from the Clean Water Act." *Id.* The draft document said implementation of TMDL load allocations is more complex than implementation of TMDL wasteload allocations because implementation of load allocations "does not rely on direct Federal regulation." *Id.* "Instead," the document reported, "implementation must typically rely on State law, local ordinance or programs administered by Federal agencies that are voluntary or incentive-based in nature. The implementation of many nonpoint source controls also depends upon Federal, State or local funding sources such as cost share programs." *Id.* For a water segment is impaired by a blend of point sources and nonpoint sources, EPA's regulations, guidance, and policies require that where any wasteload allocation to a point source is increased based on an expectation that loads from nonpoint sources will be reduced, the state must demonstrate "reasonable assurances" that the load allocations will actually be achieved. Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA Regional Administrators and Regional Water Division Directors 5 (Aug. 8, 1997) (on file with author).

³⁰⁵ *Id.*

individual TMDL submissions.³⁰⁶ The strategy document said EPA will promote a “national scale framework to consistently implement TMDL program requirements on Federal lands” and will work with other federal agencies to integrate TMDLs with other applicable federal activities (e.g., resource management plans).³⁰⁷ Finally, the draft document affirmed that EPA will promote and support innovative approaches to TMDL development and implementation, including watershed-based trading and habitat/ecological restoration.³⁰⁸

The EPA Assistant Administrator for Water's August 8, 1997 memorandum to EPA Regional Administrators and Water Division Directors established a policy regarding implementation of TMDL load allocations for waters that are impaired solely or primarily by nonpoint source pollution.³⁰⁹ The policy said each EPA Region should work in partnership with each state to attain TMDL load allocations for section 303(d)-listed waters impaired solely or primarily by polluted runoff.³¹⁰ In addition, all available programs and authorities (federal, state, and local) should be

³⁰⁶ *See id.*

³⁰⁷ *See id.* at 3.6.

³⁰⁸ *Id.* at 3.8. Interim and final versions of the strategy document may not be forthcoming. *See* Electronic mail message from Amy B. Sosin, Environmental Engineer/TMDL Team Leader, Watershed Branch, Assessment and Watershed Protection Division, Office of Wetlands, Oceans, and Watersheds, Office of Water, EPA (May 6, 1998) (on file with author). Although EPA originally intended to develop interim and final versions of the document, and even started revising the draft document during the winter of 1997-1998, the TMDL FACA Committee and other activities “overrode Strategy revision efforts.” *Id.* Amy Sosin, an Environmental Engineer/TMDL Team Leader at EPA headquarters, does not anticipate another version of the strategy document, particularly since EPA is in the beginning stages of revising its TMDL regulations and guidance. *Id.*

³⁰⁹ *See* Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA Regional Administrators and Regional Water Division Directors 4-7 (Aug. 8, 1997) (on file with author). Interestingly, the Assistant Administrator said existing EPA guidance on implementation of TMDLs is incomplete “because it does not yet address implementation of TMDLs for waters impaired only by nonpoint sources or by a blend of point and nonpoint sources in which nonpoint sources dominate.” *Id.* at 5.

³¹⁰ *See id.*

used to attain load allocations.³¹¹ Such programs include regulatory, nonregulatory, and incentive-based programs authorized by federal, state, or local law.³¹² Furthermore, each state should describe its plan for implementing load allocations for waters impaired solely or primarily by nonpoint source pollution.³¹³ The provisions of a state implementation plan may describe how load allocations will be attained by nonpoint sources for individual water segments, several water segments within a watershed, or for all impaired waters in the state.³¹⁴ State implementation plans may be submitted to EPA along with proposed TMDLs or as revisions to state water quality management plans.³¹⁵ However submitted, each implementation plan should include (at a minimum): reasonable assurances that the load allocations will actually be achieved; a public participation process; and recognition of other relevant watershed management processes (e.g., state section 319 nonpoint source management programs and state section 303(e) continuing planning processes).³¹⁶

In an August 27, 1997 memorandum, EPA's Director of Office of Wetlands, Oceans, and Watersheds provided EPA Region Water Division Directors and Water Quality Branch Chiefs clarifying guidance for section 303(d) listing decisions that had to be submitted to EPA by April 1, 1998.³¹⁷ The guidance directed states to include on their lists of impaired waters those water bodies that are impaired by

³¹¹ *Id.*

³¹² *Id.* A grant program to reward good performance is an incentive-based program the TMDL FACA Committee mentioned in its draft final report. See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at IX.B.

³¹³ *Id.* at 6.

³¹⁴ *Id.*

³¹⁵ *Id.*

³¹⁶ *Id.*

nonpoint sources alone, including water segments on federal lands.³¹⁸ This direction merely affirmed what the Director called “long-standing EPA policy, regulations, and practice.”³¹⁹ The clarifying guidance also directed states to include water segments on their section 303(d) lists that “do not meet an applicable water quality standard due entirely or partially to pollutants from atmospheric deposition.”³²⁰ Similarly, states should identify as “water quality-impaired” waters that exceed an applicable water quality standard due to pollutant loadings from unidentified point sources and/or unidentified nonpoint sources.³²¹ In addition, section 303(d) lists should include waters that are impaired by a specific pollutant that has not been identified as of the time of listing.³²² For waters impaired by an unidentified pollutant, states should (if possible) indicate on their section 303(d) lists the class of pollutants (e.g., metals or nutrients) believed to be responsible for the impairment.³²³

³¹⁷ Memorandum from Robert H. Wayland III, Director, Office of Wetlands, Oceans, and Watersheds, EPA, to Water Division Directors and Water Quality Branch Chiefs, EPA Regions I-X, and Directors of Great Water Body Programs (Aug. 27, 1997) (on file with author).

³¹⁸ *Id.* at 6.

³¹⁹ *Id.*

³²⁰ *Id.* at 2. Prior to 1998, not all states included water bodies impaired by atmospheric deposition of pollutants on their section 303(d) lists. *Id.* Since the TMDL regulations do not differentiate between sources of impairment, any water body that exceeds an applicable water quality standard must be listed no matter what produced the breach of applicable water quality standards. *See id.*; 40 C.F.R. § 130.7(b)(1) (1997). It will be interesting to see how states (or EPA, if a state fails to act) attempt to control water quality impairment due to atmospheric deposition of pollutants.

³²¹ Memorandum from Robert H. Wayland III, Director, Office of Wetlands, Oceans, and Watersheds, EPA, to Water Division Directors and Water Quality Branch Chiefs, EPA Regions I-X, and Directors of Great Water Body Programs 3-4 (Aug. 27, 1997) (on file with author). Again, the TMDL regulations require the listing of any water body for which required technology-based pollution controls or BMPs are not stringent enough to implement any water quality standard applicable to that water body. *Id.* at 3; 40 C.F.R. § 130.7(b)(1). *See supra* note 194 and accompanying text.

³²² Memorandum from Robert H. Wayland III, Director, Office of Wetlands, Oceans, and Watersheds, EPA, to Water Division Directors and Water Quality Branch Chiefs, EPA Regions I-X, and Directors of Great Water Body Programs 3-4 (Aug. 27, 1997) (on file with author). *See supra* note 194 and accompanying text.

³²³ *Id.* at 4. The TMDL regulations require states to include in their section 303(d) lists an identification of the specific pollutant or pollutants that are responsible, or believed to be responsible, for the breach of water quality standards. *Id.* at 3; 40 C.F.R. § 130.7(b)(4) (1997).

In October 1997, EPA published a draft proposed strategy for helping states improve their programs to control nonpoint source pollution.³²⁴ The proposed strategy included a commitment by EPA to work closely with states to assure implementation of EPA's August 8, 1997 guidance that called for expeditious development of TMDLs for waters impaired by nonpoint source pollution and significant and rapid expansion of implementation efforts to solve water quality problems caused by polluted runoff.³²⁵ The proposal also said EPA will develop and distribute improved technical tools on nonpoint source screening, modeling, monitoring, and management measure selection to facilitate expedited development and implementation of "better-quality TMDLs for nonpoint sources."³²⁶ The document proposed that EPA will further enhance the TMDL program by publishing a "national management measures" guidance document that identifies "the best available, economically achievable measures to control nonpoint source pollution."³²⁷

This guidance document will provide information states could use in implementing more effective programs to control polluted runoff.³²⁸ In addition to the

³²⁴ EPA, *Draft Proposed Strategy for Strengthening Nonpoint Source Management* (last modified Jan. 12, 1998) <<http://www.epa.gov/OWOW/NPS/nfsnsm/index.html>> [hereinafter *Draft Strategy for Nonpoint Source Management*]. While this paper focuses on programs under CWA sections 208, 303(d), and 319, there are also programs to manage/control nonpoint source pollution under the Coastal Zone Management Act of 1972, Pub. L. 92-583, 86 Stat. 1280 (1972) (codified as amended at 16 U.S.C. §§ 1451-65 (1994)). This paper does not address nonpoint source pollution control requirements or programs under the Coastal Zone Management Act.

³²⁵ *Draft Strategy for Nonpoint Source Management*, *supra* note 324, at V.A.1.

³²⁶ *Id.* at V.A.3.

³²⁷ *Id.* at V.A.4. The Environmental Law Institute published its report in late 1997. *See* ENVIRONMENTAL LAW INSTITUTE, ENFORCEABLE STATE MECHANISMS FOR THE CONTROL OF NONPOINT SOURCE WATER POLLUTION (1997). A few months later, a Senior Attorney at the Environmental Law Institute transformed that report into an *Environmental Law Reporter* article. *See* James M. McElfish, Jr., *State Enforcement Authorities for Polluted Runoff*, 28 ENVTL. L. REP. (Envtl. L. Inst.) 10,181 (Apr. 1998).

³²⁸ *See Draft Strategy for Nonpoint Source Management*, *supra* note 324, at V.A.4.

guidance document, the draft proposal said EPA will distribute the findings of a soon-to-be completed Environmental Law Institute report on enforceable state mechanisms for controlling nonpoint source water pollution.³²⁹ Furthermore, EPA proposed to promote the strengthening of state enforcement authorities for implementing nonpoint source controls.³³⁰ EPA will also focus on protecting impaired or threatened waters through development and enforcement of strategies to reduce pollutant loadings from atmospheric deposition.³³¹ Other components of the draft strategy include strengthening federal and state regulatory tools to address animal waste, strengthening current NPDES regulations for urban runoff, and developing a proposal to increase funding support for state and tribal nonpoint source management programs under CWA section 319.³³² The overall goal of the proposed strategy is for all states and tribes, with assistance and participation from all stakeholders, to be implementing “dynamic and effective nonpoint source programs to achieve and maintain beneficial uses of water” by the year 2013.³³³

³²⁹ *Id.* at VI.A.1.

³³⁰ *Id.* at VI.A.2.

³³¹ *See id.* at V.D.

³³² *See id.* at VI.B, VI.C, VII.C. These measures include toughening current NPDES regulations for animal waste discharges, implementing existing NPDES authorities more effectively, and issuing storm water regulations under the NPDES program to require the inclusion of BMPs to address the significant long-term impact of urban development on water quality. *See id.* at VI.B, VI.C.

³³³ *Id.* at Overall Vision. The draft proposal did not define “stakeholders,” but they are likely to include groups that influence development and implementation of nonpoint source pollution control measures, federal agencies, industry and citizen groups, and environmental groups. *See Draft Strategy for Nonpoint Source Management*, *supra* note 324, at attach. A. The TMDL FACA Committee’s draft final report defines “stakeholders” broadly to include parties that will be affected by TMDL development (e.g., landowners, affected point sources, environmental groups, resource user groups, and affected sources of polluted runoff) and governmental units with public responsibilities unrelated to TMDL development (e.g., local governments, interested state and federal agencies). *See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT*, *supra* note 95, at VIII.B.

The EPA-Department of Agriculture *Clean Water Action Plan* published in February 1998 calls for improved efforts to control nonpoint source pollution.³³⁴ The plan said polluted runoff is the biggest source of water quality problems in our nation today and identified preventing polluted runoff as one of ten key principles for restoring and protecting our nation's waters in upcoming years.³³⁵ It called for EPA and other federal agencies to help strengthen existing polluted runoff programs by providing technical assistance to states and tribes that attempt to "upgrade" their programs to prevent polluted runoff.³³⁶ It also called for EPA to develop guidance that defines expectations and procedures for states to follow in fully implementing anti-degradation policies related to nonpoint source pollution.³³⁷ Other federal actions mandated by the *Clean Water Action Plan* include EPA promoting the creation of enforceable state and tribal authorities needed to ensure polluted runoff controls are implemented, EPA working with states to increase the number and dollar amount of clean water revolving loan fund programs for priority projects to prevent polluted runoff, and EPA promulgating a strategy for reducing pollution from animal feeding operations.³³⁸ In addition, federal agencies must work with stakeholders to develop innovative approaches to reducing polluted runoff, such as avoiding land development that can aggravate nonpoint source pollution problems ("smart growth")

³³⁴ See CLEAN WATER ACTION PLAN, *supra* note 159, at i-ii, iv-vi, 17, 54-65. Although point sources will be affected by implementation of the *Clean Water Action Plan*, the plan's primary focus is on preventing or reducing pollution generated from nonpoint sources. See *id.* at i-iii. This paper does not address the possible impact of the *Clean Water Action Plan* on NPDES permit holders.

³³⁵ CLEAN WATER ACTION PLAN, *supra* note 159, at 9, 11, 17, 54.

³³⁶ *Id.* at 54-55. The state and tribal programs are general programs to reduce nonpoint source pollution in accordance with CWA section 319. See *id.* at 54-55.

³³⁷ CLEAN WATER ACTION PLAN, *supra* note 159, at 56.

³³⁸ *Id.* at 56-57, 61-62.

and tax breaks for efforts to prevent pollution and enhance natural resources (“tax incentives to encourage improved stewardship”).³³⁹ The plan requires EPA to develop a TMDL-related incentive for “smart growth” efforts: EPA must devise a means of crediting pollution load reductions from local growth management efforts in the TMDLs states and tribes submit to EPA for approval.³⁴⁰

3. TMDL FACA Committee Recommendations

The TMDL FACA Committee’s draft final report specifically addresses nonpoint source pollution in a few places.³⁴¹ The first place occurs in the report’s consideration of restrictions and actions during the period between identification of an impaired water segment and development of a TMDL for that segment.³⁴² In that place, the draft report says EPA regulations do not restrict nonpoint source activities that may cause or contribute to an impairment.³⁴³ However, the report makes no recommendation about regulating sources of polluted runoff.³⁴⁴ The draft report includes nonpoint sources, though, in its recommendations about TMDL implementation plans.³⁴⁵ The draft report says implementation plans should include the following information regarding nonpoint sources: 1) load allocations and a description of management practices or control actions; 2) a schedule for implementing nonpoint source management measures or control actions; and 3) the

³³⁹ *Id.* at 64-65.

³⁴⁰ *Id.* at 64.

³⁴¹ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at III.D, VI.E, VI.F. See also *id.* at VII.A-VII.C (impairments due to past activities, atmospheric deposition, and flow modification), XI (activities on federal lands).

³⁴² See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at III.D.

³⁴³ *Id.*

³⁴⁴ See *id.*

³⁴⁵ See *id.* at VI.E.

legal authorities under which the control actions will be implemented (e.g., section 319 programs or state water laws) and whether or not those actions are enforceable.³⁴⁶

In addition, implementation plans should include: 1) “reasonable assurances” that nonenforceable control actions for certain nonpoint source activities will result in compliance with load allocations required by the TMDL; 2) an estimate of the time needed to achieve applicable water quality standards and a showing that the standards will be met as quickly as practicable; 3) a monitoring plan for determining the effectiveness of the management measures/control actions; 4) measurable milestones for deciding if the implementation plan is being properly carried out and determining if applicable water quality standards are being met; 5) the consequences of failing to meet the measurable milestones; and 6) a schedule for revising the state’s continuing planning process and applicable water quality management plans to include the TMDL.³⁴⁷

In a section dedicated specifically to incorporating nonpoint source controls in TMDLs, the TMDL FACA Committee’s draft final report acknowledges that pollutant loadings from nonpoint sources are significant and widespread contributors

³⁴⁶ *Id.* The report says the description of management practices or control actions should include: who must undertake the practice or measure; what actions must be taken by identified nonpoint sources to meet their load allocations; when such actions must be taken; and where those actions apply (i.e., the geographic boundaries for sources and control actions). *Id.* The report notes that nonpoint source management measures/control actions may include “voluntary, incentive-based measures, as well as regulatory controls, and ‘bad actor’ provisions.” *Id.*

³⁴⁷ DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VI.E. The recommendation does not specify which nonpoint source activities require “reasonable assurances,” but says that, at a minimum, providing assurances that load allocations will be attained means: demonstrating funds are available to implement the nonenforceable actions; describing the process for entering into the agreements required to carry out the nonenforceable actions (e.g., agreements with federal entities, state agencies, and private landowners); presenting an assessment of the probability that government programs (e.g., Conservation Reserve Program) will continue; and providing an

of pollution to impaired waters across our nation.³⁴⁸ The report also recognizes that, historically, nonpoint sources have not been regulated to the same extent or degree as point sources.³⁴⁹ Furthermore, the report says that waters impaired by a mixture of point sources and nonpoint sources should be included on state section 303(d) lists, waters impaired solely or partially by nonpoint source contributions should receive priority attention under section 319 nonpoint source management programs, and the attainment/nonattainment status of waters impaired solely or partially by nonpoint source pollution should be tracked and made public.³⁵⁰ In addition, the proposed report says that legal issues exist regarding requiring states to list waters impaired solely by polluted runoff and that the Committee decided not to address those issues in its report.³⁵¹ Regarding nonpoint source controls, the report includes three

analysis of the expected effectiveness of the management measures to lead to desired pollutant loading reductions. *Id.*

³⁴⁸ *See id.* at VI.F.

³⁴⁹ *See id.*

³⁵⁰ *Id.*

³⁵¹ *Id.* Agricultural interests contend that section 303(d) does not apply to nonpoint sources. Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,399. According to them, TMDLs are restricted to point sources because TMDLs must be set after the exhaustion of effluent limitations and effluent limitations are only set for point sources. *See id.* In late April 1997, the United States Forest Service protested the application of section 303(d) to nonpoint sources. *Id.* at 10,400. The Forest Service claimed section 303(d) was written with point sources in mind and EPA's inclusion of nonpoint sources in its TMDL requirements was "exposing all Federal and State agencies to additional litigation" over nonpoint source controls. *See id.* (quoting Letter of Arthur Bryant, Director, Watershed and Air Management, United States Forest Service, to Geoffrey H. Grubbs, Director, Assessment and Watershed Protection Division, EPA (Apr. 29, 1997)). In his article, Professor Houck noted that the language of section 303(d) is silent about whether it applies to point sources, nonpoint sources, or to both sources of pollution, but the drafters of the provision were "well aware that nonpoint sources contributed significantly to the failure to attain water quality standards" and EPA has called for allocation of nonpoint source loadings within TMDLs since 1975. *See id.* at 10,399-400. Professor Houck called the legal objection to regulating nonpoint sources under section 303(d) "essentially political." *See id.* at 10,400. Houck said that in enacting section 303(d), Congress did not exclude nonpoint sources from the TMDL requirements. *Id.* In addition, when adding section 319 to the CWA in 1987, Congress again said nothing to indicate nonpoint sources are included or excluded from the TMDL requirements. *Id.* By 1987, EPA's TMDL regulations covering nonpoint sources had been effective for 11 years. *Id.* Professor Houck said "[t]he notion that Congress repealed a federal program without referring to it by enacting another is novel to environmental law." *Id.*

recommendations: load allocations be established and implemented in accordance with the principles set out in section VI of the report (TMDL Development);³⁵² states should modify their TMDLs and/or their TMDL implementation plans to assure attainment of the water quality improvement goal, if the initial combination of controls established in state TMDL implementation plans fail to produce expected water quality improvement;³⁵³ and EPA should assure that the combination of wasteload allocations and load allocations it reviews and approves (during the TMDL development process) are designed to achieve water quality standards.³⁵⁴

The draft final report contains a section that addresses water quality impairment resulting from legacy problems, atmospheric deposition, and flow modifications.³⁵⁵

³⁵² DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VI.F. The principles of section VI are incorporated in the seven components the Committee recommends the TMDL development and implementation process include: target identification (selecting measurable environmental characteristics that indicate compliance with water quality standards); identification of current deviation from the target/level of pollution reduction needed to meet the target; source identification (identifying the sources that contribute to the impairment); allocation of pollution loads; implementation plan; process for monitoring/assessment of effectiveness (provisions for evaluating the TMDL's effectiveness in attaining water quality standards); and process for TMDL revision (provisions for modifying and/or revising the TMDL if it is not effective in attaining water quality standards). *See id.* at VI.A-G.

³⁵³ *See id.* at VI.F. For a discussion of the Committee's proposed TMDL implementation plan, see *supra* notes 203-05 and accompanying text. The draft final report proposes that when revising a TMDL or implementation plan, states: review the BMPs they previously identified for nonpoint sources and revise them as needed to ensure that they can continue to produce the most pollution reduction practicable; identify any additional nonpoint sources that should be subject to the TMDL; identify any additional management measures and/or controls that will reduce (to the maximum extent practicable) the pollution of concern from polluted runoff that enters the impaired waters; and exercise, as needed, any additional authorities over nonpoint sources provided by state and/or federal law. *See* DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VI.F.

³⁵⁴ *See id.* The Committee proposes recommending that EPA disapprove any TMDL that is not expected to provide for attainment and saying that it is the states' responsibility to decide which BMPs are to be included in their implementation plans and it is the states' duty to decide which management practices or measures will be regulatory, nonregulatory, incentive-based, and/or voluntary. *Id.*

³⁵⁵ *See* DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VII.

Legacy problems involve contamination from past activities that are not ongoing (e.g., dam construction, abandoned mines, road building, and past discharge of pollutants that contaminated bottom sediments).³⁵⁶ The report recommends EPA require states to include on their section 303(d) lists waters that are impaired wholly or in part by legacy sources.³⁵⁷ As a consequence of section 303(d) listing, states must develop TMDLs for waters impaired by legacy sources and prepare TMDL implementation plans that lead to attainment of water quality standards.³⁵⁸ However, an implementation plan involving legacy sources may require “creative solutions” and a longer timeframe for attaining water quality standards than a plan involving existing sources.³⁵⁹

The TMDL FACA Committee recognized that atmospheric deposition of toxic pollutants (e.g., lead and mercury) or of nutrients (e.g., nitrogen) may contribute to the impairment of many water bodies.³⁶⁰ Nonetheless, the Committee members disagreed on how the TMDL program should address waters impaired by atmospheric deposition.³⁶¹ As a result, the draft final report states several challenges and perspectives regarding section 303(d) listing and TMDL development for waters

³⁵⁶ See *id.* at VII.A.

³⁵⁷ *Id.*

³⁵⁸ See *id.*

³⁵⁹ See *id.* If no solution can be found to address a legacy problem, the Committee proposes states be allowed to conduct a “Use Attainability Analysis” in order to justify changing the designated uses for the water segment impaired by legacy sources. See *id.* Some legacy problems may be easy to identify and cure. See *id.* For example, stabilizing unused logging roads may remedy water quality impairment due to legacy sources. *Id.* Other problems may be difficult, time consuming, and costly to remedy. See *id.*

³⁶⁰ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VII.B.

³⁶¹ See *id.*

impaired by atmospheric deposition, but only recommends further study into the causes and solutions for water body impairment from atmospheric sources.³⁶²

Regarding impairments due to flow modifications (e.g., hydrological modifications resulting in insufficient flows, human modifications which produce high flows and freshwater inflows to estuarine areas), the report recommends EPA require states to include waters impaired solely or partially by instream flow modifications on their section 303(d)(1) lists.³⁶³ In addition, the proposed report recommends EPA assist states faced with flow modification problems with technical assistance and information, as well as encourage the application of “innovative approaches to addressing flow-related problems, such as water ‘trading’ schemes that allow the improvement of flow.”³⁶⁴

Another section of the draft report addresses public participation and stakeholder involvement in identification of impaired water bodies and development

³⁶² *See id.* The challenges included difficulty distinguishing between pollutant loadings from atmospheric sources and loadings from non-atmospheric sources and identifying governmental authorities that can be used to modify source air emissions to meet water body loading reduction goals. *Id.* The perspectives included some members advocating listing all waters impaired by air deposition of air emissions, some members contending that water bodies impaired by atmospheric deposition generally should not be listed under section 303(d)(1), and different views on TMDL development requirements for waters impaired by atmospheric deposition (assuming that such water segments are listed under section 303(d)). *See id.* The Committee agreed that EPA should conduct and promote more research into the reasons and solutions for water body impairment by deposition of air emissions. *See id.*

³⁶³ *See* DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VII.C. High flows or freshwater inflows to estuarine areas can cause changes in flow velocity, channel scouring, and other physical and chemical problems that adversely affect aquatic life and water quality standards. *See id.*

³⁶⁴ *See id.* The Committee’s recommendations are general in nature because “similar to legacy problems, addressing [flow modification-producing] impairments may require creative problem-solving approaches, and in some cases, a relatively longer time period to achieve water quality standards. Moreover, the Committee recognizes that because State water laws differ widely, and land use planning is an activity within the purview of local governments, it would be difficult to develop specific approaches to flow concerns that could be applied to the TMDL program nationally.” *Id.*

of TMDLs.³⁶⁵ This section in part recommends that states include waters on their section 3030(d) lists that are nominated by the public, when supporting data is reliable and meets specified listing criteria.³⁶⁶ It also recommends that states and EPA promote a substantial role for stakeholders in the development and implementation of TMDLs.³⁶⁷ In addition, this section recommends that states and/or EPA enter into written agreements with stakeholders that specify stakeholder roles and state/EPA expectations for TMDL development.³⁶⁸

The draft final report includes recommendations that federal land management agencies (e.g., Bureau of Land Management, United States Forest Service) be actively involved in TMDL development and implementation.³⁶⁹

As of June 4, 1998, the draft final report does not address watershed-based effluent trading, habitat restoration, or other innovative approaches to implementing TMDL load allocations.³⁷⁰ In addition, the report does not promote or even address using the state water quality certification process under CWA section 401 as a means of controlling pollution from nonpoint sources.³⁷¹ The Committee's silence about

³⁶⁵ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VIII.

³⁶⁶ *Id.* at VIII.A.

³⁶⁷ See *id.* at VIII.B. The recommendation indicates that stakeholders' role should include funding TMDL development, as well as gathering and analyzing data for use in establishing TMDLs. See *id.*

³⁶⁸ *Id.*

³⁶⁹ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A-B. These recommendations will be addressed later in this paper.

³⁷⁰ See *supra* notes 215-18 and accompanying text.

³⁷¹ The Committee merely acknowledges that states can use section 401 certifications to obtain pollutant load reductions. See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A. In simple terms, section 401 prohibits the issuance of a federal permit or license to conduct an activity that may result in a discharge into navigable waters unless the state in which such discharge will originate certifies that any such discharge will comply with various water quality requirements, including state water quality standards. See CWA § 401(a)(1), 33 U.S.C. § 1341(a)(1). If a state certifies compliance based on specified conditions, those conditions are incorporated into the terms of the federal permit or license. See CWA § 401(d), 33 U.S.C. § 1341(d). Caputo discusses the use of section 401 for controlling polluted runoff in his article. See Caputo,

substantive measures to implement load allocations is troubling but not surprising.

The Committee's recognition of "legal issues" regarding applying TMDL allocations to nonpoint sources even though nonpoint sources have been subject to EPA's TMDL regulations for nearly 20 years indicates a reluctance by the Committee to advocate substantially regulating nonpoint sources to achieve the CWA's goals of making our nation's waters fishable and swimmable goals.^{371.1} The Committee's limited treatment and general recommendations regarding polluted runoff reflect the Committee's hesitation to quickly and completely restore America's water bodies.

While hesitation is understandable due to the diffuse nature of polluted runoff and the political pressures against seriously regulating nonpoint sources (including pressures within the federal government itself, such as those from the Forest Service), recommending further studies, unidentified voluntary measures, and unspecified

supra note 226, at 10,584-85. For an in-depth analysis of section 401's potential as a tool for controlling nonpoint source pollution, see Debra L. Donahue, *The Untapped Power of Clean Water Act Section 401*, 23 *ECOLOGY L.Q.* 201 (1996). The use of section 401 to regulate nonpoint source pollution on federal public lands is currently being litigated in *Oregon Natural Desert Ass'n v. Thomas*, 940 F. Supp. 1534 (D. Ore. 1996), *appeal argued sub nom. Oregon Natural Desert Ass'n v. Dombeck*, No. 97-35065 (9th Cir. Feb. 10, 1998). In this Forest Service case, the Federal District Court held that federal grazing permit applicants must obtain state certification under section 401 and enjoined the Forest Service from issuing any term grazing permits where the applicant has not obtained section 401 certification. *Thomas*, 940 F. Supp. 1534.

^{371.1} The draft report says, "The Committee recognizes that there are legal issues that have been raised as to whether waters impacted only by nonpoint sources are to be listed under Section 303(d)(1)(A), Section 303(d)(3) or only under Section 319. However, the Committee has decided not to address these legal issues in its report." DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VI.F. Professor Houck noted that although section 303(d) is silent about whether it applies to only point sources, only to nonpoint sources, or to both point sources and nonpoint sources, the drafters of section 303(d) were "well aware that nonpoint sources contributed significantly to the failure to attain water quality standards." See Houck, *TMDLs, Are We There Yet?*, *supra* note 11 at 10,399-400. Houck concluded that the most logical reading of the process the drafters created is "to read nonpoint sources as included." *Id.* at 10,400. "Indeed," Houck continued, "in both the context of that time and the present, TMDLs for point sources alone make no pollution control sense at all. This reading of the statute is bolstered by the fact that EPA has given the statute the same reading, consistently, from the issuance of its first regulations." *Id.* Professor Houck called the argument that section 303(d) does not apply to nonpoint sources "essentially political. As a legal argument, the

incentives is a weak way of handling what the states and EPA agree is the leading cause of water quality impairments.

VIII. The Impact of TMDLs on Federal Facilities

A. Waiver of Sovereign Immunity

Section 313 of the CWA contains a waiver of sovereign immunity for federal departments, agencies, instrumentalities, employees, and agents.³⁷²

The waiver requires federal facilities, activities, and personnel to comply with all federal, state, and local requirements respecting the control and abatement of water pollution in the same manner, and to the same extent, as any nongovernmental entity.³⁷³ The waiver applies to federal properties and activities that discharge pollutants into waters of the United States as point sources.³⁷⁴ It also applies to federal lands and properties from which polluted runoff originates.³⁷⁵ Section 313 includes an exemption for effluent sources

position is thin." *Id.* See Houck, *TMDLs, Are We There Yet?*, *supra* note 11 at 10,399-400, for a discussion of the applicability of TMDL requirements to nonpoint sources.

³⁷² CWA § 313(a), 33 U.S.C. § 1323(a).

³⁷³ *Id.*

³⁷⁴ *Id.* For purposes of this paper, the term "federal facilities" will be used to describe buildings, installations, and operations that are owned, operated, or controlled by the federal government and qualify as point sources of water pollution. A "point source" is "any discernible, confined and discrete conveyance," such as a pipe, ditch, tunnel, well, container, or rolling stock, from which pollutants are or may be discharged. CWA § 502(14), 33 U.S.C. § 1362(14).

³⁷⁵ CWA § 313(a), 33 U.S.C. § 1323(a). For purposes of this paper, "federal facilities" will also be used to refer to forests, ranges, parks, and other federal properties that qualify as nonpoint sources of water pollution. As previously discussed at *supra* note 25, the CWA does not define "nonpoint source." However, EPA defined nonpoint source pollution as "A diffuse source of water pollution that does not discharge through a pipe [or other point source as defined in section 502(14) of the CWA], such as agricultural or urban runoff, runoff from construction activities, etc." REPORT TO CONGRESS: NONPOINT SOURCE POLLUTION, *supra* note 221, app. at C-4 (1984). "Federal facilities" describes both point sources and nonpoint sources of water pollution because most federal point sources have parking lots or other open areas that qualify as nonpoint sources of pollution. An airport, for example, may be both a point source and nonpoint source of pollution: the plumbing in structures at the airport may be point sources and the runway and parking lots may be nonpoint sources of pollution. In addition to runways and parking lots, many military installations have parks,

within the Executive Branch, but the President must invoke the exemption and it is only effective for one year at a time.³⁷⁶

B. Impact on Federal Facilities with NPDES Permits

Section 303(d) requirements may impact federal facilities that are NPDES permit holders under section 402. In fiscal year 1997 (FY97), there were a total of 6,630 major and 65,689 minor NPDES permit holders nationwide.³⁷⁷ In the same year, 125 major and 1,084 minor NPDES permit holders were federal facilities.³⁷⁸ While federal facilities may account for only

forest areas, fields used for farming, or grazing ranges within their boundaries. Where appropriate, this paper's discussion of federal facilities will distinguish between the point source and nonpoint source aspects of the federal installation, operation, or land holding.

³⁷⁶ *Id.* The President may exempt any Executive Branch effluent source from compliance with any otherwise applicable requirement if he determines doing so is in the "paramount interest of the United States." *Id.* However, the President may not exempt sources from compliance with the requirements of sections 306 (national performance standards) or 307 (toxic pollutant and pretreatment effluent standards). *Id.* In addition, the President may not grant an exemption for a period exceeding one year. *Id.* However, upon a new "paramount interest" determination, the President can extend an expiring exemption for another one year period. *Id.*

³⁷⁷ EPA, Permit Compliance System, April 1998. EPA defines "major" permit holders as "Any NPDES facility or activity classified as such by the Regional Administrator, or in the case of approved State programs, the Regional Administrator in conjunction with the State Director. Major municipal dischargers include all facilities with design flows of greater than 1 MGD [(million gallons per day)] and facilities with EPA/State approved industrial pretreatment programs. Major industrial facilities are determined based on specific ratings criteria developed by EPA/State." EPA, EPA 833-B-96-003, US EPA NPDES PERMIT WRITERS' MANUAL G-7 (1996). Minor permit holders are permittees that are not classified as majors. *See id.*

³⁷⁸ EPA, Permit Compliance System, April 1998. Information about the types of federal facilities that constitute minor permittees was unavailable as of May 7, 1998. *Id.* However, EPA's Permit Compliance System database identified the location and, in some cases, types of federal facilities classified as major permit holders in FY97. *Id.* Most of the major federal permittees are military installations. *Id.* Of the 125 major permits in effect, 35 are held by United States Army operations (including forts, depots, arsenals, ammunition plants, and a chemical depot), 18 are held by United States Navy installations, 17 belong to United States Air Force facilities, and 10 cover United States Marine Corps facilities. *Id.* Outside of the Department of Defense, the Tennessee Valley Authority has the most major NPDES permit facilities (25, including steam plants and nuclear power plants). *Id.* The Department of Energy has 10 major permits and the Department of the Interior has 5. *Id.* Other major permits cover waste water treatment plants, national laboratories, and a drinking water treatment operation. *Id.* "Nationwide," of course, includes Guam and Puerto Rico where the Navy is a major NPDES permit holder. *Id.* Federal facility major permit holders exist in more than 30 states, the District of Columbia, Guam, and Puerto Rico. *Id.* For a printout of the Permit Compliance System's data on major NPDES permit holders that are federal facilities, *see* Appendix C.

a fraction of the major and minor NPDES permits in effect, permits for discharges into water quality-limited water bodies may be modified as states and EPA establish TMDLs and look for ways to implement them.³⁷⁹ In addition to more stringent permit conditions (which may include use of improved pollution control technologies) to meet wasteload allocations, federal permit holders may be subject to watershed-based trading, instream monitoring requirements, and habitat restoration requirements.³⁸⁰ As stakeholders, federal permit holders may become involved in funding TMDL development and gathering data used in establishing TMDL allocations.³⁸¹

The real impact section 303(d) will have on NPDES permit holders that are federal facilities is difficult to assess. State and federal regulators have not finished identifying water quality-impaired segments and have not established many TMDLs or TMDL implementation plans. The TMDL FACA Committee is still evaluating the TMDL program and considering what changes to recommend to the program. Once regulators finish their work and EPA revises its TMDL regulations and guidance documents, it will be easier to discern how compliance with section 303(d) will impact federal facilities that hold NPDES permits. Since section 313 waives sovereign immunity for federal facilities, it is likely that federal facilities will be affected by implementation of TMDLs. However, the number of NPDES permits held by

³⁷⁹ For FY97, the math works out to federal facilities accounting for approximately 1.9 percent of the major and 1.65 percent of the minor NPDES permits. As of May 7, 1998 information is not readily available concerning how many of the major federal permit holders discharge into waters that are either currently listed or likely to be identified as being water quality-limited.

³⁸⁰ See DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 3.8.1-8.3.

federal facilities is only a fraction of the total number of NPDES permits outstanding. Therefore, the impact of section 303(d) on federal dischargers will likely be much less in proportion to the section's impact on commercial industries and other (non-federal) government dischargers (e.g., local wastewater treatment plants).

C. Impact on Federal Facilities with Polluted Runoff Problems

The lack of TMDLs and TMDL implementation plans makes it difficult to assess the impact of section 303(d) on federal lands and properties that serve as nonpoint sources of pollution. However, the impact should be significant. The United States owns 662 million acres (29 percent) of the nation's total land area of 2.3 billion acres.³⁸² Although there are federal public lands in all states and territories, the majority of federal lands are located in eleven western states and Alaska.³⁸³ Most federal lands are ranges,

³⁸¹ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VIII.B.

³⁸² GEORGE CAMERON COGGINS, CHARLES F. WILKINSON, & JOHN D. LESHY, FEDERAL PUBLIC LAND AND RESOURCES LAW 12 (3d ed. 1993 & Case Supp. 1996). It used to be said that the United States owned about one-third of the nation's total land area, but grants to native and statehood grants in Alaska reduced the proportion to 29 percent. *Id.* In the February 1998 EPA-Department of Agriculture *Clean Water Action Plan*, EPA and the Department of Agriculture reported that federal lands and resources total more than 800 million acres of the United States, including Alaska. See CLEAN WATER ACTION PLAN, *supra* note 159, at v-vi, 17, 31. The TMDL FACA Committee reports that more than 30 percent of the land area in the United States is federally managed. DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A. Neither the draft final report nor the *Clean Water Action Plan* cited any sources for their information. See CLEAN WATER ACTION PLAN, *supra* note 159, at v-vi, 17, 31; DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A. While it is unlikely that the federal government acquired nearly 200 million acres of land and resources since Coggins, Wilkinson, and Leshy updated their textbook, the accuracy of the EPA-Department of Agriculture and FACA Committee calculations of federal holdings is unimportant: whether the federal government owns 29 percent or more than 30 percent of the nation's total land area, the federal government manages a tremendous amount of real estate.

³⁸³ GEORGE CAMERON COGGINS, CHARLES F. WILKINSON, & JOHN D. LESHY, *supra* note 382, at 12. The eleven states are: Arizona, California, Colorado, Idaho, Montana, Nevada, New

forests, wildlife refuges, wilderness areas, or parks and are managed by one of a few agencies.³⁸⁴ However, a variety of federal agencies own land for some reason, such as for office space, post offices, reservoirs, nuclear reactor sites, or military installations.³⁸⁵ Although much of the United States' land holdings are open or minimally developed areas, their use for farming, mining, grazing, hunting, and recreation (e.g., hiking, camping, and sightseeing by vehicle) make them nonpoint sources of pollution.³⁸⁶ With nonpoint source pollution being the major water quality problem in the United States today, state and federal regulators should impose real controls on federal lands and other

Mexico, Oregon, Utah, Washington, and Wyoming. *Id.* Alaska contains 37 percent of all federal lands. *Id.*

³⁸⁴ See *id.* at 1. The Bureau of Land Management by far manages the most land: it administers 264 million acres or approximately 40 percent of all federal public lands. BUREAU OF LAND MANAGEMENT, BLM FY 1997 PUBLIC REWARDS FROM PUBLIC LANDS 1 (1997). BLM also manages 300 million acres of subsurface mineral estate located throughout the nation. *Id.* BLM is an agency of the Department of the Interior (DOI). *Id.* The Department of Agriculture's United States Forest Service (USFS) manages 201 million acres of forest lands. GEORGE CAMERON COGGINS, CHARLES F. WILKINSON, & JOHN D. LESHY, *supra* note 382, at 137-138. DOI's Fish and Wildlife Service (FWS) administers 85 million acres of wildlife refuge property, 75 million acres of which are located in Alaska. *Id.* at 139. The National Park Service (NPS), another DOI agency, manages nearly 80 million acres of land, which amounts to 12 percent of the federal public lands. *Id.* at 1, 140. Nearly two-thirds of NPS's properties are located in Alaska. *Id.* at 140. Wilderness areas, which are managed by whichever federal agency owns the property that receives wilderness designation from Congress, comprise about 95 million acres of federal lands. See *id.* at 141, 1015. Sixty percent of national wilderness areas are located in Alaska. *Id.* In total, approximately two-thirds of the State of Alaska consists of federal public lands. See *id.* at 12.

³⁸⁵ GEORGE CAMERON COGGINS, CHARLES F. WILKINSON, & JOHN D. LESHY, *supra* note 382, at 1. Department of Defense agencies manage approximately 25 million acres (roughly 3.8 percent) of federal public lands. *Id.* at 1 (Case Supp. 1996).

³⁸⁶ Consider the following information from BLM: In FY96, nearly 60 million people visited BLM lands for recreational purposes; 18,795 grazing permits and leases were in use; 237.4 million board feet of timber were harvested; 10,514,920 acres were in producing status and 1,410 new holes were started under oil and gas leases; 143 active coal leases produced 320.1 million tons of coal; 2,554 mineral material (salable) leases were issued and 9,023,575 cubic yards of minerals were produced; 523,580 acres were under non-energy leases and generated 15,330,540 tons of product; 1,232 mineral exploration notices were approved; and 2,691 out of 3,702 rights-of-way applications were granted. BUREAU OF LAND MANAGEMENT, *supra* note 384, at 2, 7. Mining, grazing, and silviculture activities are major producers of nonpoint source pollution. Parking lots and roadways required to accommodate recreation uses and timber harvesting are additional nonpoint sources of pollutants.

generators of nonpoint source pollution in order to meet TMDLs and attain applicable water quality standards.³⁸⁷

There are signs that implementation of section 303(d) will require federal land managers to take action to control runoff and other types of nonpoint source pollution (e.g., atmospheric deposition). In an August 1997 discussion about implementing TMDLs for waters impaired solely or primarily by nonpoint source pollution, EPA's Assistant Administrator for Water said "Federal land management agencies have responsibilities to resolve nonpoint source problems on Federally owned and managed lands."³⁸⁸ The Assistant Administrator went on to say a federal land management agency can enter into a memorandum of understanding with the relevant state water quality agency to "accomplish implementation of nonpoint source controls necessary to meet water quality standards," and can implement controls

³⁸⁷ See Houck, *TMDLs, Are We There Yet?*, *supra* note 11 at 10,399. Professor Houck said nonpoint source pollution has become "the dominant water quality problem in the United States, dwarfing all other sources by volume, and, in conventional contaminants, by far the leading cause of nonattainment for rivers, lakes, and estuaries alike. *Id.* (referencing Houck, *TMDLs: The Resurrection of Water Quality Standards-Based Regulation Under the Clean Water Act*, *supra* note 4). "It is no secret to any observer of the Clean Water Act," Houck said, "that the primary reason for this mushrooming problem is the fact that while other sources have been abated through required controls and their enforcement, no comparable controls or enforcement have been applied to agriculture, silviculture, and the rest of the nonpoint world." *Id.* (citing Houck, *TMDLs: The Resurrection of Water Quality Standards-Based Regulation Under the Clean Water Act*, *supra* note 4). Since technology-based controls imposed on point sources failed to achieve water quality standards, it makes sense for regulators to turn to controls on nonpoint sources to attain those standards. What makes sense is not always what is possible, though, given public and political demands. The political debate over control of nonpoint sources of pollution is beyond the scope of this paper. For discussions of controlling nonpoint source pollution originating from federal lands, see Robert L. Glicksman, *Pollution on the Federal Lands II: Water Pollution Law*, 12 UCLA J. ENVTL. L. & POL'Y 61 (1993); Jeffrey W. Styron, *Regulation of Nonpoint Sources of Water Pollution on Public Lands*, 41 NAVAL L. REV. 97 (1993).

³⁸⁸ Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA Regional Administrators and Regional Water Division Directors 5 (Aug. 8, 1997) (on file with author).

through federal licenses and permits.³⁸⁹ He also encouraged Regional Administrators and Water Division Directors to work in partnership with each state and use all available federal, state, and local programs and authorities (including non-regulatory or incentive-based programs) to achieve TMDL load allocations for nonpoint sources.³⁹⁰

The October 1997 draft strategy for strengthening management of polluted runoff calls for increased federal activity in solving the nonpoint source pollution problem.³⁹¹ The proposal seeks the creation of a nonpoint source “task force” comprised of more than a dozen federal agencies to consider and execute different ways of improving nonpoint source water quality protection nationwide.³⁹² It also requires EPA to enter into memoranda of understanding with other federal agencies that promote federal consistency with and support for state programs.³⁹³ Other federal agencies must enter into agreements with state agencies that are designed to “improve communications and working relationships and promote consistency between State and Federal programs that are implemented within the State.”³⁹⁴ In addition, the draft

³⁸⁹ *Id.*

³⁹⁰ *Id.*

³⁹¹ See *Draft Strategy for Nonpoint Source Management*, *supra* note 324, at IV.B-C, VI.B-C, attach. C.

³⁹² *Id.* at VI.C, attach. C. The purpose and functions of the proposed federal task force include: working together to help state agencies effectively carry out their nonpoint source management duties under the CWA and Coastal Zone Management Act; working together to identify, establish common goals, and implement solutions to polluted runoff problems and threats in impaired watersheds that have significant federal lands; and demonstrating “innovative management strategies and public/private partnership arrangements” to improve nonpoint source water quality conditions. See *id.* at attach. C.

³⁹³ See *Draft Strategy for Nonpoint Source Management*, *supra* note 324, at IV.C.1.

³⁹⁴ *Id.* at IV.C.2.

strategy requires EPA to strengthen federal requirements that address animal waste discharges and urban runoff.³⁹⁵

The February 1998 *Clean Water Action Plan* calls for increased federal action to control nonpoint source pollution.³⁹⁶ The plan calls for federal and state agencies to “revise standards where needed and make existing programs more effective.”³⁹⁷ Federal agencies are called to work with states and tribes to promote the creation of “enforceable authorities to ensure the implementation of polluted runoff controls by the year 2000.”³⁹⁸ The Department of Agriculture and the Department of the Interior must “take the lead” in developing a unified federal policy to improve water quality and the health of aquatic systems on federal lands.³⁹⁹ That policy must include control of polluted runoff through training in and implementation of BMPs, working with states and tribes to meet performance goals, and entering into appropriate memoranda of agreement.⁴⁰⁰ The *Action Plan* tasks the Forest Service, BLM, and other federal land management agencies with specific tasks to control polluted runoff or improve conditions on federal lands.⁴⁰¹

³⁹⁵ *Id.* at VI.B-C. These measures include finalizing EPA’s Animal Feeding Operations Strategy and issuing storm water regulations under the NPDES permit program that require BMPs address “the substantial long-term effects of urban development on water quality.” *Id.*

³⁹⁶ See CLEAN WATER ACTION PLAN, *supra* note 159, at ii, iv-vi, xi-xii, 17, 31-39. Two of the ten principles the *Action Plan* identifies for restoring and protecting America’s waters are “Prevent Polluted Runoff” and “Stewardship of Federal Lands and Resources.” *Id.* at 11, 17.

³⁹⁷ See *id.* at ii, iv.

³⁹⁸ *Id.* at v.

³⁹⁹ See *id.* at vi. The policy will provide a framework “to ensure that federal land and resource management activities demonstrate water quality stewardship and ensures the health of aquatic ecosystems on federal lands.” *Id.* at 32.

⁴⁰⁰ *Id.* at 32-33.

⁴⁰¹ See CLEAN WATER ACTION PLAN, *supra* note 159, at 31-39. By the year 2002, the Department of Agriculture must establish two million miles of conservation buffers to reduce nonpoint

They do not specifically address TMDLs, but the October 1997 draft strategy document and February 1998 *Clean Water Action Plan* call for increased efforts by federal agencies to control nonpoint source pollution.⁴⁰² Federal agency participation in the development and implementation of load allocations for nonpoint sources that create or contribute to a water quality impairment problem is consistent with the goals and directives of the strategy document and action plan.⁴⁰³ Participation of federal agencies (other than, or in addition to, EPA) in developing and implementing load allocations is also consistent with the TMDL FACA Committee's proposed recommendations.⁴⁰⁴

The TMDL FACA Committee's draft report includes a number of recommendations regarding development and implementation of TMDLs for impaired waters that flow through or on federal lands.⁴⁰⁵ Those recommendations include: requiring federal land managers to monitor waters

source pollution and protect watersheds. *Id.* at vi. By 1999, the Forest Service must promulgate forest transportation regulations to protect water quality by increasing maintenance of forest roads and trails on federal lands. *Id.* at 34. By 2005, BLM, the Forest Service, and other federal land management agencies shall implement an accelerated program to improve or restore 25,000 miles of stream corridors. *Id.* at 34. Another example of federal actions called for by the *Action Plan*: by 1999, federal land management agencies will work in partnership with EPA, state and tribal agencies, private parties, and other interested groups to "accelerate the rate of cleanup of watersheds affected by abandoned hard rock mines. With special emphasis on ensuring that viable responsible parties contribute their share of cleanup costs, federal land managers will, beginning in 1999, add three to five watersheds or major mine cleanup actions to the program each year through 2005." *Id.* at 36.

⁴⁰² See *Draft Strategy for Nonpoint Source Management*, *supra* note 324; CLEAN WATER ACTION PLAN, *supra* note 159.

⁴⁰³ Federal agency participation may be in the form of funding, providing technical assistance, data collection, training, or even regulatory requirements. See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A. It does not seem likely, though, that any regulatory requirements will include mandatory substantive controls on nonpoint source polluters. See CLEAN WATER ACTION PLAN, *supra* note 159, at 32 (unified federal policy will include control of nonpoint sources "through training in and implementation of [BMPs], working with states and tribes to meet performance goals, and establishing appropriate memorandums of agreement").

⁴⁰⁴ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A.

⁴⁰⁵ *Id.*

on their lands for compliance with water quality standards and/or TMDL requirements; requiring federal land managers to regularly report the results of their monitoring to EPA and/or state officials; and requiring federal agencies to participate in TMDL development for waters that flow on federal lands, with federal land managers funding the data collection and analysis needed to identify impaired water segments and develop TMDLs for them.⁴⁰⁶ In addition, the report recommends federal land managers be required to develop plans that set specific milestones and describe the steps the agency will take to ensure that load allocations over which they have oversight or authority are met expeditiously.⁴⁰⁷ Furthermore, the report recommends that during the time between listing of an impaired segment and TMDL development, federal agencies use available programs, limitations, and other authorities to prohibit or minimize “new or increased pollution loadings that will cause or contribute to a water quality standard’s violation from point and nonpoint sources pending the TMDL’s completion.”⁴⁰⁸ Adoption of the FACA Committee’s draft recommendations will force all federal agencies that have polluted runoff problems to actively participate in identifying impaired waters, establishing TMDLs for those waters, and enforcing TMDL-derived load limitations.⁴⁰⁹ Such participation will be a new obligation for federal facilities under the CWA and will require federal agencies to use their resources (funds, staff, and

⁴⁰⁶ *Id.* at XI.A(2), (4).

⁴⁰⁷ *See id.* at XI.A(5).

⁴⁰⁸ *Id.* at XI.A(3).

⁴⁰⁹ *Id.* at XI.A(1)-(5).

technology) to help the states and EPA perform state and EPA duties under section 303(d).⁴¹⁰ It will be interesting to see, in the upcoming months, if the FACA Committee changes its recommendations about federal land managers and how the committee's final recommendations are received by federal agencies and Congress.⁴¹¹

IX. Conclusion

When it amended the FWPCA in 1972, Congress shifted the focus of water pollution law from the enforcement of water quality standards to the enforcement of technological standards.⁴¹² Congress did not, though, discard water quality standards: it retained a water quality-based strategy for upgrading waters that remained polluted after implementation of technology-based controls.⁴¹³ That water quality-based strategy required each state or EPA (if a state failed to act or EPA disapproved the state's actions) to identify waters that remained quality-impaired after the application of technology standards.⁴¹⁴ It also required the states or EPA to develop and implement

⁴¹⁰ For example, the draft final report says the Forest Service and BLM need to include TMDL-related monitoring (data collection), data analysis, and implementation (including restoration) into their budgets routinely where they are "major stakeholders" on impaired water segments or manage land through which impaired waters flow. *See id.* at XI.D.

⁴¹¹ The Forest Service has already voiced its opposition to imposing load allocations under section 303(d). *See Houck, TMDLs, Are We There Yet?*, *supra* note 11, at 10,399-400; *supra* note 351 and accompanying text.

⁴¹² *Natural Resources Defense Council v. EPA*, 915 F.2d at 1316-17.

⁴¹³ Pub. L. 92-500, § 2, 86 Stat. 846 (codified as amended at 33 U.S.C. § 1313(d) (1994)). *See Oliver A. Houck, TMDLs, Are We There Yet?* *supra* note 11; *Natural Resources Defense Council v. EPA*, 915 F.2d at 1317.

⁴¹⁴ CWA §§ 303(d)(1)(A)-(B), 33 U.S.C. §§ 1313(d)(1)(A)-(B).

pollutant loading limitations for impaired waters that will enable the waters to attain water quality standards.⁴¹⁵

The water quality-based strategy sounded simple but was slow in catching on.⁴¹⁶ Focusing their attention and efforts on developing and imposing technology-based controls, neither the states nor EPA paid much attention to CWA section 303(d) for a number of years.⁴¹⁷ Some delay made sense since the TMDL requirements only applied when technology-based limitations failed to ensure waters attained and maintained applicable water quality standards.⁴¹⁸ Nonetheless, a series of lawsuits, beginning in the late 1970s and continuing today, challenged state and federal efforts to comply with section 303(d).⁴¹⁹ As a result, state and federal regulators are becoming more serious about improving the quality of our nation's waters through performing their duties under the CWA's water quality-based strategy.⁴²⁰

⁴¹⁵ CWA §§ 303(d)(1)(C)-(D), 33 U.S.C. §§ 1313(d)(1)(C)-(D).

⁴¹⁶ See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,392-97, 10,401; Bazel, *supra* note 108, at 1245-47, 1257-65.

⁴¹⁷ See WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 4, 20-24; Electronic mail message from Amy B. Sosin, Environmental Scientist/TMDL Team Leader, Watershed Branch, Assessment and Watershed Protection Division, Office of Wetlands, Oceans, and Watersheds, Office of Water, EPA (May 6, 1998) (on file with author); Electronic mail message from Amy B. Sosin, Environmental Scientist/TMDL Team Leader, Watershed Branch, Assessment and Watershed Protection Division, Office of Wetlands, Oceans, and Watersheds, Office of Water, EPA (May 14, 1998) (on file with author); CLEAN WATER ACTION PLAN, *supra* note 159, at 15-16, 17-18.

⁴¹⁸ See Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,392.

⁴¹⁹ See *id.* at 10,392-97; Conway, *supra* note 123, at 93-98; EPA, *TMDL Litigation by State* (last modified Apr. 29, 1998) <<http://www.epa.gov/OWOW/tmdl/lawsuit1.html>>.

⁴²⁰ Oliver A. Houck, *Recent Developments in the Clean Water Act NPDES Program*, SC56 A.L.I.-A.B.A. 323, 325 (1998); WATER POLLUTION - MORE EPA ACTION NEEDED TO IMPROVE THE QUALITY OF HEAVILY POLLUTED WATERS, *supra* note 87, at 24.

Regulators are identifying quality-impaired water segments and are developing TMDLs for those impaired waters.⁴²¹

The development and implementation of TMDLs will impact both point sources and nonpoint sources of water pollution.⁴²² Effluent limitations in NPDES permits will become more stringent.⁴²³ In addition, nonpoint sources will be encouraged to reduce polluted runoff.⁴²⁴ Given regulators' persistent reluctance to impose significant mandatory controls on nonpoint source polluters, TMDLs' impact will probably be greater on point sources than on nonpoint sources.⁴²⁵ Nonetheless, developing and executing TMDL allocations will help improve the condition of our nation's waters.

Implementation of the load allocations and wasteload allocations derived from TMDLs will affect federal facilities.⁴²⁶ Because section 313 makes federal facilities subject to federal, state, and local water pollution control laws and rules, federal agencies cannot escape compliance with relevant TMDLs set by state or EPA officials.⁴²⁷ Although there are relatively

⁴²¹ DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at II.A; EPA, *Status of 1998 Section 303(d) Lists (June 5, 1998)* (last modified June 5, 1998) <<http://www.epa.gov/owow/tmdl/tmdlmap.htm>>.

⁴²² See *supra* notes 126-150, 164-220, 231-242, 285-371 and accompanying text.

⁴²³ See *supra* notes 177, 181, 200-02 and accompanying text.

⁴²⁴ See *supra* notes 245-84, 293-371 and accompanying text.

⁴²⁵ See Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, *TMDL Overview*, Question 3 (last modified Feb. 12, 1998) <<http://www.epa.gov/OWOW/tmdl/nov96mtg/fsintro.html>> ("Historically, the typical TMDL has been developed as a wasteload allocation, considering a particular water body segment, for a particular point source, in order to support setting effluent limitations in that point source's National Pollution Discharge Elimination System (NPDES) discharge permit."); DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 2.1 ("Most TMDLs developed to date have addressed water body segments containing only a single point source discharger.").

⁴²⁶ See *supra* notes 372-411 and accompanying text.

⁴²⁷ CWA § 313(a), 33 U.S.C. § 1323(a); *supra* notes 372-376 and accompanying text.

few federal NPDES permit holders, federal installations or operations may be subject to more stringent effluent limitations, as well as additional monitoring and reporting requirements.⁴²⁸ They may also be subject to mitigation or restoration requirements and trading or other incentive-based control measures.⁴²⁹

Federal facilities or properties that generate or can control nonpoint sources of pollution (such as runoff from runways and parking lots, or discharges from farming, grazing, logging, mining, and construction activities) may become obligated to participate in identification of impaired waters and development of TMDLs.⁴³⁰ Such participation may include funding TMDL development, monitoring water quality of waters that flow through federal lands, regularly reporting the results of water quality monitoring to state and/or EPA officials, and analyzing data used to establish TMDLs.⁴³¹

Federal facilities may also be required to help states, tribes, and/or EPA implement load allocations.⁴³² Implementation actions may include federal land managers having to develop plans that set specific milestones and describe the steps the agency will take to ensure that load allocations over

⁴²⁸ EPA, Permit Compliance System, April 1998; *supra* notes 377-79 and accompanying text.

⁴²⁹ DRAFT TMDL PROGRAM IMPLEMENTATION STRATEGY, *supra* note 141, at 3.8.1-8.3.

⁴³⁰ *Draft Strategy for Nonpoint Source Management*, *supra* note 324, at IV.B-C, VI.B-C, attach. C; CLEAN WATER ACTION PLAN, *supra* note 159, at i-ii, iv-vi, xi-xii, 17, 31-39; DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A; Memorandum from Robert Perciasepe, Assistant Administrator for Water, EPA, to EPA Regional Administrators and Regional Water Division Directors 5 (Aug. 8, 1997) (on file with author).

⁴³¹ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A(2), (4); *supra* notes 405-08 and accompanying text.

which they have oversight or authority are met expeditiously.⁴³³ They may also include federal agencies being required to use available programs, limitations, and other authorities to prohibit or minimize an increase in harmful pollutant loadings into an impaired water segment during the time between section 303(d) listing of the segment as impaired and development of a TMDL for the segment.⁴³⁴

At a minimum, federal facilities should be required to develop and enact nonpoint source pollution control measures. Nonpoint source pollution is the primary reason our nation's waters fail to meet applicable water quality standards.⁴³⁵ The TMDL program provides regulators authority to impose controls on nonpoint sources.⁴³⁶ Applying control measures to nonpoint sources will help regulators make great progress in achieving the objective of the TMDL requirements: attainment of water quality standards. Polluted runoff control measures, though, must be applied to *all* nonpoint sources that contribute to water quality impairment problems.

Imposing control measures on federal facilities alone will not cure our waters' ailment. Private and public sources of polluted runoff must be

⁴³² See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A(5), (8); *supra* notes 407-08 and accompanying text.

⁴³³ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A(5); *supra* note 407 and accompanying text.

⁴³⁴ See DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at XI.A(3); *supra* note 408 and accompanying text. "Harmful pollutant loadings" in this context are loadings that will cause or contribute to a water quality standard's violation from point sources or nonpoint sources. See *id.*

⁴³⁵ See CLEAN WATER ACTION PLAN, *supra* note 159, at 9; 1996 NATIONAL WATER QUALITY REPORT, *supra* note 169.1, at 13, 15-16, 19-20; PROBLEM OF NONPOINT SOURCE POLLUTION, *supra* note 226, at 1.

regulated in order to achieve the CWA's goals for our nation's waters. In addition, nonpoint source control measures must be substantive and enforceable. Voluntary, incentive-based controls are helpful, but will not assure attainment of applicable water quality standards. Mandatory reductions, if enforceable and actually enforced, will finish the job the FWPCA Amendments of 1972 started more than 25 years ago.⁴³⁷ Such reductions can be imposed through a permit system (including a section 401 certification requirement), effluent trading scheme, and/or management and process requirements that will assure compliance with applicable load allocations. Controlling nonpoint source pollution may be politically unpopular and economically expensive, but it is essential in order to maintain and improve the condition of our nation's water bodies.

When addressing the Senate about the conference committee report on the FWPCA Amendments of 1972, Senator Muskie said:

Our planet is beset with a cancer which threatens our very existence and which will not respond to the kind of treatment that has been prescribed in the past. The cancer of water pollution was engendered by our abuse of our lakes, streams,

⁴³⁶ See CWA § 303(d), 33 U.S.C. § 1313(d); 40 C.F.R. §§ 130.2, 130.5, 130.7 (1997); Houck, *TMDLs, Are We There Yet?*, *supra* note 11, at 10,399-400; Caputo, *supra* note 226, at 10,584.

⁴³⁷ In 1997, Caputo said that after 25 years of CWA legislation and regulation, America is only halfway to its goal of clean water because America has made "essentially no progress in addressing polluted runoff." Caputo, *supra* note 226, at 10,577-578, 10,584. Mr. Caputo said the "bulk" of the water quality challenge facing America today is successfully controlling nonpoint source pollution. *See id.* at 10,584. In its draft final report, the TMDL FACA Committee acknowledges that, historically, nonpoint sources have not been regulated as "comprehensively" as point sources and "the water quality programs for point and nonpoint sources differ in a variety of ways." DRAFT TMDL FEDERAL ADVISORY COMMITTEE REPORT, *supra* note 95, at VI.F. For a discussion of federal and state failure to aggressively approach control of nonpoint source pollution, see *supra* note 301 and accompanying text.

rivers, and oceans; it has thrived on our half-hearted attempts to control it; and like any other disease, it can kill us.⁴³⁸

Senator Muskie went on to say that the cancer of water pollution has been ignored for too long and that the legislation under consideration must provide "the means, properly administered, to eliminate this cancer."⁴³⁹

Section 303(d) gives federal and state regulators the ability to eliminate the nation's water pollution problems through water quality-based controls on point source and nonpoint source generators of water pollution. However, absent aggressive attacks of both sources of water pollution (pollutant loadings from point sources and loadings from polluted runoff), we will not eliminate the cancer. For that reason, regulators must use their CWA ability and available authority to develop and implement both wasteload allocations and load allocations for impaired water segments.

Our most precious natural resource -- our nation's waters -- can become fishable and swimmable if regulators develop, implement, and enforce effective TMDLs. Those TMDLs, though, must include substantive, mandatory, and enforceable load allocations for nonpoint sources. Regulating nonpoint source pollution is critical in order to maintain and improve the health of our nation's waters. The TMDL provisions of the CWA provide regulators the medicine they need to cure

⁴³⁸ 118 CONG. REC. S16,869 (daily ed. Oct. 4, 1972), *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, *supra* note 1, at 161 (statement of Sen. Muskie).

⁴³⁹ *See id.* at 162. Regarding failures to address the issue of water pollution, Senator Muskie actually said: "We have ignored this cancer for so long that the romance of environmental concern is already fading in the shadow of the grim realities of lakes, rivers, and bays where all forms of life have been smothered by untreated wastes, and oceans which no longer provide us with food." *Id.* The

the cancer of water pollution. Prescribed and applied properly, that medicine can solve the nation's nonpoint source pollution problem and achieve the CWA's objective and goals.

conference committee members agreed that the conference-generated version of the legislation must provide the means, properly administered, to eliminate water pollution. *See id.*

APPENDIX A

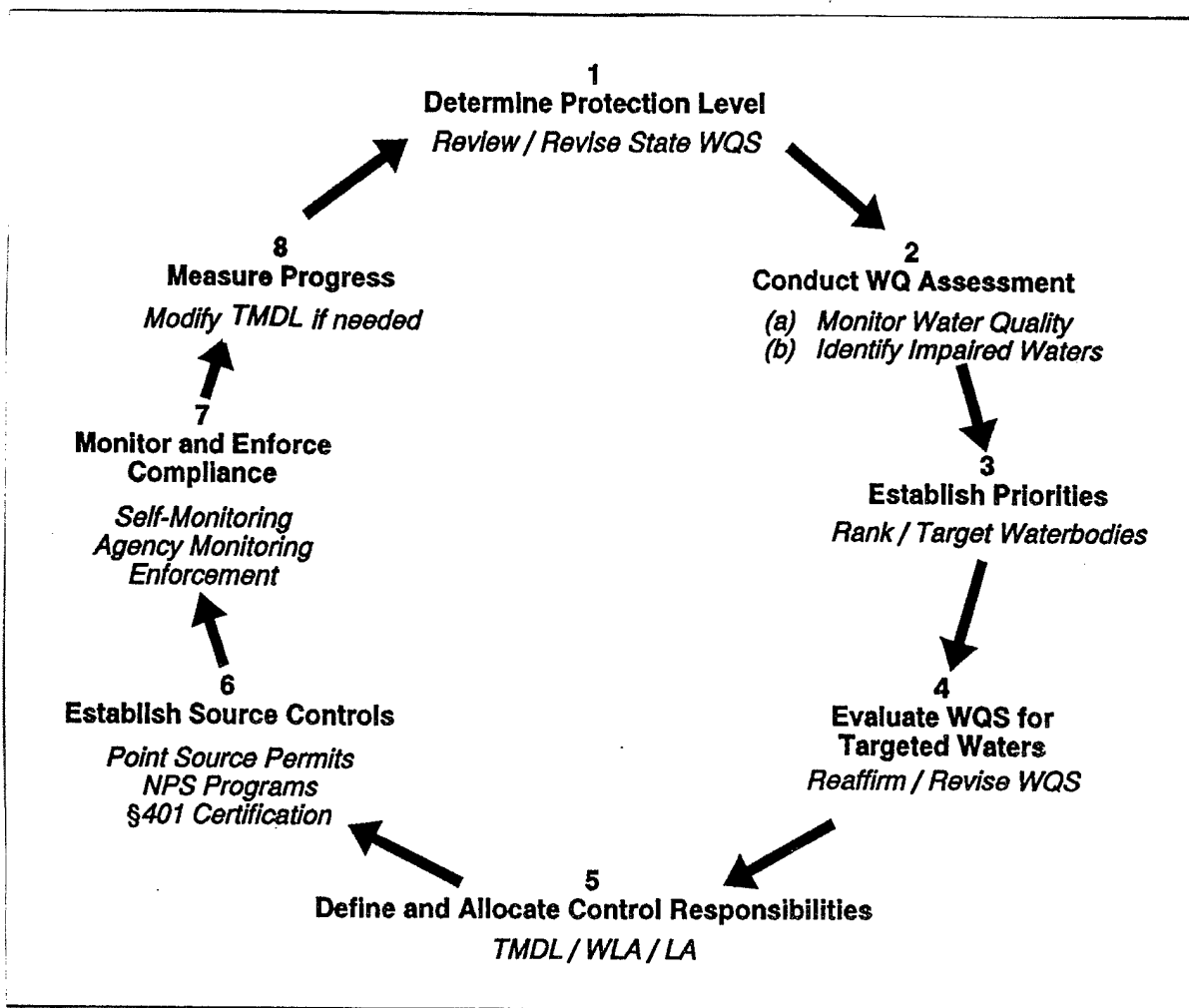
Water Quality-Based Approach to Water Pollution Control

Stage	Name	Description
1	Determine Protection Level	States develop water quality standards
2	Conduct Water Quality Assessment	States identify impaired waters, determine if water quality standards (WQS) are being met, and detect pollution trends
3	Establish Priorities	States rank water bodies according to the severity of the pollution, the uses to be made of the waters, and other social-economic considerations, and determine how best to utilize available resources and solve problems
4	Evaluate Water Quality Standards for Targeted Waters	States evaluate the appropriateness of the WQS for specific waters. States may revise or reaffirm their WQS
5	Define and Allocate Control Responsibilities	States establish the level of control needed to meet WQS. States define and allocate control responsibilities. States use mathematical models and/or monitoring to determine total maximum daily loads (TMDLs) for water bodies. TMDLs include wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources, and a margin of safety

Stage	Name	Description
6	Establish Source Controls	States and Environmental Protection Agency (EPA) implement source controls through national pollution discharge elimination system (NPDES) permits. State and local governments implement nonpoint source management programs through state laws and local ordinances. States also assure attainment of WQS through the Clean Water Act (CWA) section 401 certification process
7	Monitor and Enforce Compliance	States (or EPA) evaluate self-monitoring data reported by dischargers to see that the conditions of the NPDES permit are being met and take actions against any violators. Discharges are monitored to determine whether or not they meet permit conditions and to ensure that expected water quality improvements are achieved. State nonpoint source programs are monitored and enforced under state law and to the extent provided by state law
8	Measure Progress	The states (and EPA) assess the effectiveness of the controls and determine whether WQS have been attained, WQS need to be revised, or more stringent controls should be applied

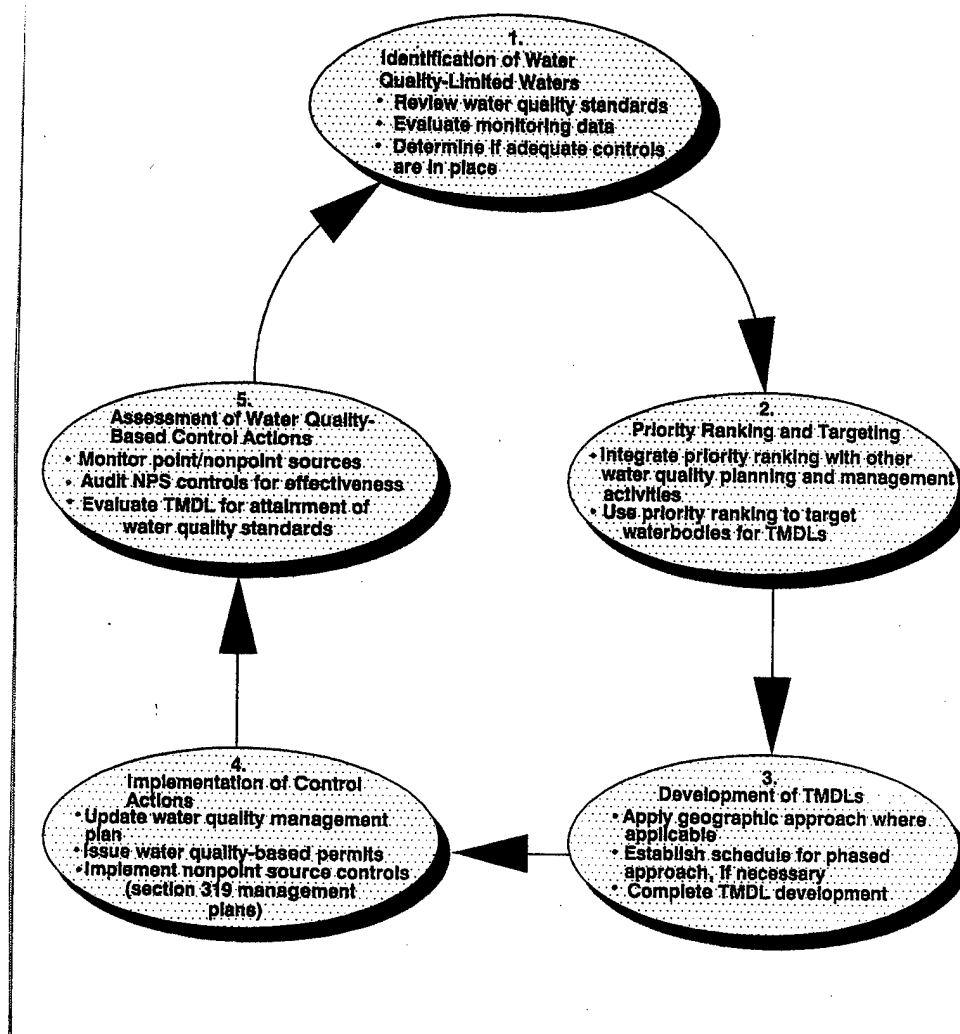
Source: EPA, EPA-823-B-94-005a, WATER QUALITY STANDARDS
HANDBOOK - SECOND EDITION §§ 7.1-7.8 Figure 7.1 (1994)

Figure A-1. Water Quality-Based Approach to Pollution Control



Source: EPA, EPA-823-B-94-005a, WATER QUALITY STANDARDS
HANDBOOK - SECOND EDITION Figure 7.1 (1994)

Figure A-2. General Elements of the Water Quality-Based Approach to Water Pollution Control

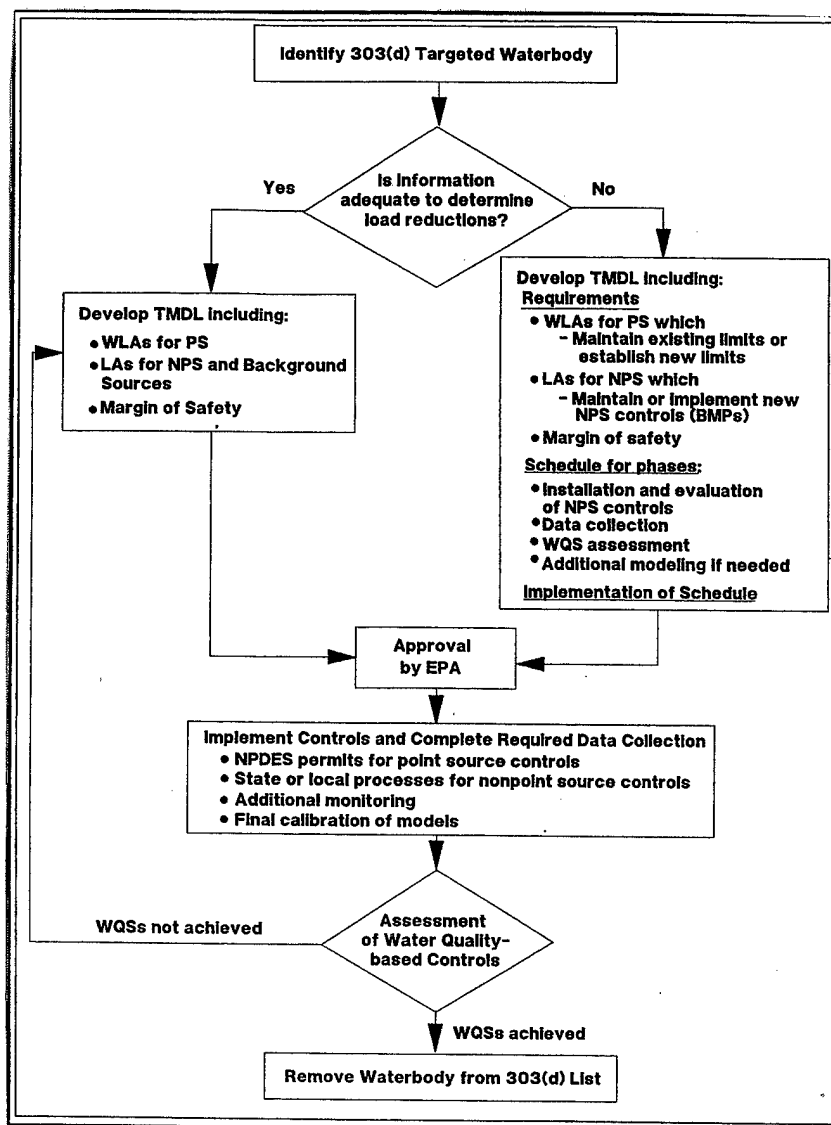


Source: EPA, EPA 440/4-91-001, GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS Figure 1 (1991)

APPENDIX B

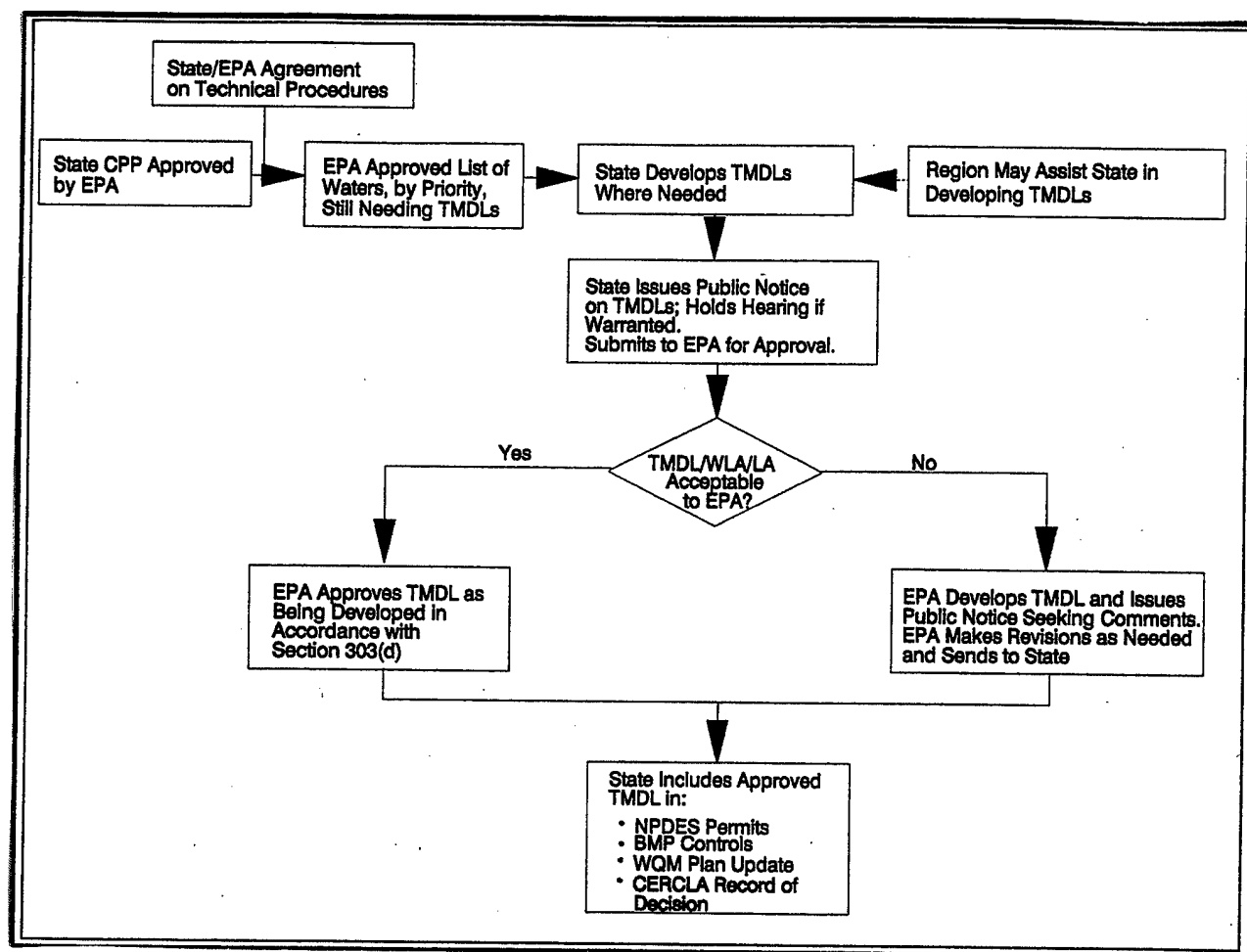
Total Maximum Daily Loads (TMDLs) Development Process

Figure B-1. Development of Total Maximum Daily Loads (TMDLs) for Targeted Water Bodies



Source: EPA, EPA 440/4-91-001, GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS Figure 2 (1991)

Figure B-2. Total Maximum Daily Load (TMDL) Development and Approval Procedure



Source: EPA, EPA 440/4-91-001, GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS Figure 3 (1991)

Key:	Term	Meaning
BMP	Best Management Practice	
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-26, 9651-75	
CPP	Continuing Planning Process	
EPA	Environmental Protection Agency	
LA	Load Allocation	
NPDES	National Pollution Discharge Elimination System	
NPS	Nonpoint Source	
PS	Point Source	
TMDL	Total Maximum Daily Load	
WLA	Wasteload Allocation	
WQM	Water Quality Management	
WQS	Water Quality Standard	
303(d)	Clean Water Act Section 303(d), 33 U.S.C. § 1313(d)	

Source: EPA, EPA 440/4-91-001, GUIDANCE FOR WATER QUALITY-BASED
DECISIONS: THE TMDL PROCESS List of Acronyms (1991)

APPENDIX C

Major Federal NPDES Permit Holders

Major NPDES

Permit #	Federal Facility Name	FFID
AL0000019	U S ARMY REDSTONE ARSENAL	AL-213820742
AL0002658	U S ARMY ANNISTON ARMY DEPOT	AL-213820027
AL0003867	TVA--COLBERT STEAM PLANT	
AL0003875	TVA--WIDOWS CREEK STEAM	
AL0022080	TVA--BROWNS FERRY NUC PLANT	
AL0024635	TVA--BELLEFONTE NUCLEAR PLANT	
AR0001678	USA--PINE BLUFF ARSENAL	AR-213820707
AR0034452	USA--FORT CHAFFEE	AR-213720187
AZ0020150	NOGALES, CITY OF	
AZ0110221	US AIR FORCE	AZ-572124133
AZ0110230	US AIR FORCE	AZ-571528582
CA0003786	US NAVY	CA-170023190
CA0081759	US DEPT. OF INTERIOR	CA-141707161
CA0108251	US MARINE CORPS	
CA0108863	US MARINE CORPS	
CA0108928	INT'L BOUNDARY & WATER COMMISS	
CA0110116	US NAVY	CA-170022784
CA0110299	US AIR FORCE	CA-571924508
CO0000876	USA--FT CARSON--(STORM)	CO-214020150
CO0000931	USA--PUEBLO CHEMICAL DEPOT	CO-213820725
CO0001333	USDOE-ROCKY FLATS PLANT	CO-890010526
CO0020974	USAF-ACADEMY	CO-572924928
CO0021181	USA-FT CARSON	CO-214020150
CO0021237	USA-FITZSIMONS--FAC ENG	CO-211620333
CO0021717	USBOR-LEADVILLE DRAIN TUNNEL	CO-142306966
CT0002984	ALLIED SIGNAL INC	CT-213822924
DC0000019	WASH AQUEDUCT - DALECARLIA PLANT	DC-960010232
FL0000922	USN NS MAYPORT	
FL0000957	USN NAS JACKSONVILLE STP	FL-170024412
FL0002500	USN NAS PENSACOLA STP	FL-170024567
GA0000973	USA FT BENNING	
GA0001198	USAF (LOCKHEED AF PLT #6)	GA-572024606
GA0002852	USAF ROBINS AFB	GA-571724330
GA0003484	USA FT GORDON	
GA0027588	USA HUNTER AFB STP	GA-214022733
GU0000019	US NAVY	GU-170022680

Major NPDES

Permit #	Federal Facility Name	FFID
GU0110019	US NAVY	GU-170022680
HI0110078	US MARINE CORPS	HI-170022762
HI0110086	US NAVY	HI-170022205
HI0110141	US ARMY	HI-214522239
HI0110230	US NAVY	HI-170024339
IA0022144	IOWA ARMY AMMUNITION PLANT	
ID0000825	INTERIOR, FISH & WILDLIFE	
ID0021512	INTERIOR, FISH & WILDLIFE	ID-143619951
IL0002666	JOLIET ARMY AMMUNITION	IL-213820460
IL0026859	SCOTT AIR FORCE BASE	IL-571824177
IL0034592	ARGONNE NATIONAL LABS	IL-890008946
IN0001163	INDIANA ARMY AMMUNITION PLANT	IN-213820443
IN0021539	NAVAL SURFACE WARFARE CENTER	IN-170023500
IN0024902	USDAF USAF GRISSOM AFB	IN-571924472
KS0028321	SUNFLOWER ARMY AMMO--PLANT	KS-213820878
KS0029360	US ARMY--KANSAS ARMY AMMUNITION	KS-213820467
KS0029505	US ARMY--FT RILEY	KS-214020756
KY0002917	US ARMY ARMOR CTR & FORT KNOX	KY-213720479
KY0004049	DOE/LEMS/PDGBP	KY-890008982
KY0004201	TVA PARADISE FOSSIL PLANT	KY-640013156
KY0004219	TVA SHAWNEE FOSSIL PLT	KY-640006686
LA0003549	US DEPT OF THE ARMY AMMUNITION	LA-213820533
LA0032221	USA-FORT POLK	LA-214020716
MD0003158	NAVAL SURFACE WARFARE CENTER	MD-170024109
MD0020150	PATUX. RIV. NAVAL AIR STATION	MD-170024536
MD0020877	US DEPARTMENT OF THE ARMY--FT D	MD-214020267
MD0020885	INDIAN HEAD DIVISION--NAVAL SUR	MD-170024684
MD0021229	ABERDEEN PROVING GROUND--EDGEWO	MD-213820036
MD0021237	ABERDEEN PROVING AREA--ABERDEEN	MD-213821355
MD0021717	US DEPT OF ARMY HEADQUARTERS,	
ME0090174	LORING UTILITIES SYSTEM	ME-571924522
MO0029378	USAF, WHITEMAN AFB	MO-571924549
MO0029742	USA, FT LEONARD WOOD WWTP	MO-213720979
MS0040797	MISS ARMY AMMUNITION PLANT	MS-213816123
NC0062995	USMC MCB--CL CAMP GEIGER WWTP	
NC0063002	USMC MCB--CL TAWARA TERRACE WWT	
NC0063011	USMC MCB--CL CAMP JOHNSON WWTP	
NC0063029	USMC MCB--CL HADNOT POINT WWTP	
ND0020486	USAF--MINOT AFB	ND-571924758
ND0020621	USAF--GRAND FORKS	ND-571924759

Major NPDES

Permit #	Federal Facility Name	FFID
NH0090077	US AIR FORCE--NEW BOSTON ST	NH-572024023
NM0028355	UNIVERSITY OF CALIFORNIA, OPER	NM-890010515
NY0000973	WEST VALLEY DEMONSTRATION PROJ	
NY0005835	BROOKHAVEN NATIONAL LABORATORY	NY-890008975
NY0023761	WEST POINT--TARGET HILL WWTP	
OH0009580	US DEPARTMENT OF ENERGY	OH-891808976
OH0009857	US DEPARTMENT OF ENERGY	OH-890508984
OK0000523	USA--MCALESTER ARMY AMMUNITION	OK-213822798
OK0000809	USAF--TINKER AFB--OKC	OK-571724391
OK0030295	USA--FORT SILL (FIELD ARTILLERY)	
PA0010502	LETTERKENNY ARMY DEPOT/IW	PA-213820503
PR0020010	US NAVAL STA. ROOSEVELT RDS	PR-170027203
SC0000175	US DOE/SAVANNAH RIVER SITE	SC-890008989
SD0000281	USAF--ELLSWORTH AFB	SD-571924644
SD0000299	SSGS--EROS DATA CENTER	SD-140000021
SD0021610	USNPS--MT RUSHMORE NTL	SD-141707084
TN0000060	USA MILAN ARMY AMMO PLT	TN-213820582
TN0002941	USDOE--ORNL	TN-890008981
TN0002950	USDOE--OAK RIDGE GASEOUS PLT	
TN0002968	USDOE--OAK RIDGE Y12 PLT	TN-890008981
TN0003671	USA HOLSTON ARMY AMMO PLT AREA	TN-213820421
TN0003751	USAF ARNOLD AFS--AEDC	TN-572024044
TN0005355	TVA--ALLEN STEAM	TN-640030034
TN0005410	TVA--BULL RUN STEAM	TN-640014699
TN0005428	TVA--GALLATIN STEAM	TN-640006677
TN0005436	TVA--SEVIER STEAM	TN-640006680
TN0005444	TVA--JOHNSONVILLE STEAM	TN-640006681
TN0005452	TVA--KINGSTON STEAM	TN-640006682
TN0005789	TVA--CUMBERLAND STEAM	TN-640015415
TN0020168	TVA--WATTS BAR NUCLEAR	
TN0026450	TVA--SEQUOYAH NUCLEAR	TN-640015412
TX0000035	USA--LONGHORN ARMY AMMUNITION P	TX-213820529
TX0000132	USA--RED RIVER DEPOT-TEXARKANA	TX-213820738
TX0000353	LOCKHEED MARTIN CORPORATION	
TX0000671	USAF--KELLEY AFB--SAN ANTONIO	TX-571724333
TX0007889	USN--CORPUS CHRISTI NAS	TX-170022786
UT0023027	USAF--HILL AIR FORCE BASE	UT-571724350
VA0000248	RADFORD ARMY AMMUNITION PLANT	VA-213820729
VA0002151	USMC DEVLOPMENT & EDUCATI	VA-170024722
VA0004421	SEWELLS POINT NAVAL COMPLEX	

Major NPDES

Permit #	Federal Facility Name	FFID
VA0005215	US GOVT. NAVY NORFOLK SHIPYA	VA-170024813
VA0025194	BLACKSTONE WWTP	VA-213720705
VA0025216	FT EUSTIS	VA-213720321
VA0028363	US MARINE CORPS BASE--MAINSID	VA-170024722
WA0002062	DEFENSE, NAVY	WA-170023418
WA0003743	ENERGY, DEPARTMENT OF	WA-890008967
WA0021954	DEFENSE, ARMY	WA-214020506
WA0025917	ENERGY, DEPARTMENT OF	

Source: EPA, Permit Compliance System, April 1998